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Timber Sale Planning and Analysis System: A User's Guide to the TSPAS Default Database Program

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TSPAS_DDP



TSPAS Information Manager



Default Database

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Research Summary

The Timber Sale Planning and Analysis System (TSPAS) is a computer software package consisting of two separate, but interrelated programs: the TSPAS Sale Program (TSPAS_SP) and the TSPAS Default Database Program (TSPAS_DDP). TSPAS_SP was designed to assist planners in designing and evaluating timber sale alternatives. TSPAS_SP addresses many of the important economic and financial questions

in sale design, such as: "What is the contribution of individual harvest units?" "Is a particular sale alternative likely to sell?" "What are the likely effective and ineffective road credits?" "How much discretionary K-V can be supported by a sale alternative?" "What are the costs and benefits of future management following the sale in relation to both timber and nontimber outputs?" To facilitate quick and easy development of sale alternatives, TSPAS_SP relies on default information as a starting point. The default values are not fixed into the software, but rather are retrieved from a default database.

TSPAS_DDP constructs and supports the default databases utilized by TSPAS_SP. TSPAS_DDP collects basic, planning information applying to sales within a specific geographic area, such as a region, several forests within a region, or a specific forest. Specifically, TSPAS_DDP accumulates information about the area's site preparation and regeneration methods, species, timber products, nontimber outputs, Forest Service costs and more. TSPAS_DDP also compiles general appraisal information and regenerated stand prescriptions. The geographic-specific, default data collected by TSPAS_DDP becomes the foundation for all sales designed by TSPAS_SP. TSPAS_DDP is, perhaps, less captivating than TSPAS_SP, but represents the heart and soul of TSPAS_SP. A well-developed default database is critical to the efficient, smooth development of timber sale alternatives.

This manual discusses the operation of TSPAS_DDP only. TSPAS_DDP operates on Forest Service Data General computers using the Oracle database software. It is menu-driven, making use of many of the CEO function keys. This manual provides detailed descriptions and step-by-step instructions for operating TSPAS_DDP. Additionally, appendices cover:

- Instructions for acquiring and installing TSPAS_DDP and TSPAS_SP
- A glossary of important words and terms
- A discussion of error messages
- A description of the computations used in TSPAS_SP
- A summary listing of the data collected by TSPAS_DDP.

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Introduction

The below-cost timber sales reports issued by the General Accounting Office and Congressional Research Service in 1984 changed the way the USDA Forest Service conducts its timber business. Two outcomes resulted. First, the Forest Service became responsible for designing defensible timber sales by providing credible explanations for why a sale was designed a particular way. Second, the Forest Service began participating in TSPIRS—Timber Sale Program Information Reporting System. Produced annually for the U.S. Congress, the TSPIRS reports reflect the condition of the Forest Service's timber sale programs.

Early in 1995, the Forest Service issued procedures outlining the analytical requirements for timber sale projects (FSH 2409.18). The procedures call for financial and economic analyses, analyses for the existing as well as the regenerated stand, consideration of timber and nontimber outputs, accounting of K-V (Knutson-Vandenberg Congressional appropriations) deposits, purchaser road credits, estimates of salability and more. With decreasing budgets, decreasing personnel, and increasing pressure, these analytical requirements are formidable, and there has been no Service-wide tool to help meet these analysis needs.

TSPAS, the Timber Sale Planning and Analysis System, was developed by the Economics Research Unit of the Intermountain Research Station to help planners design and evaluate timber sale alternatives and to simultaneously accomplish the requirements for project-level analysis. It is a software system for designing timber sales in light of both near- and long-term timber and nontimber considerations.

TSPAS consists of two separate but interrelated programs: the TSPAS Sale Program (TSPAS_SP) and the TSPAS Default Database Program (TSPAS_DDP). TSPAS_SP aids planning teams in developing and evaluating timber sale alternatives. Its several features can be used individually or in combination:

1. **Existing and Regenerated Stand Analysis**—TSPAS_SP regards both the existing stand and the regenerated stand in appraisal. Sale planners may choose to consider only the existing stand in alternative analysis, or they may take into account long-term timber considerations as well.
2. **Multiple Harvest Entries**—TSPAS_SP allows multiple harvest entries into existing stand cutting units. This permits sale planners to

consider uneven-aged management alternatives as well as even-aged management.

3. Appraisal Flexibility—TSPAS_SP offers Residual Value (RV) or Transactions Evidence (TE) stumpage appraisal methods. Within TE, TSPAS_SP recognizes both the equation-based and the adjusting-averages approach.
4. Multiple Products—TSPAS_SP permits multiple timber products from within the same sale. Sale planners designate a “primary” timber product and appraise it using either RV or TE appraisal methods. Planners provide the appraisal information directly for the other or “secondary” products.
5. Nontimber Outputs—TSPAS_SP provides the opportunity to include all important nontimber outputs associated with the sale. Sale planners may quantify nontimber outputs by recording the amount of output expected. When quantifying nontimber outputs, planners may choose to value the output as well. Sale planners may also rate sale alternatives with respect to the amount of output produced.
6. Nonharvest Activities—TSPAS_SP provides the opportunity to record nonharvest activities associated with the sale alternative. Planners describe a nonharvest activity, provide the cost and specify whether the activity will be funded with K-V dollars. TSPAS_SP estimates dollars available for K-V activities and funds them accordingly.
7. USDA Forest Service Costs—TSPAS_SP provides the option of including Forest Service costs for planning and administering timber sales. Costs can be applied on a per-acre or per-unit volume basis, and can occur before, during, or after the sale itself.

These features provide sale planners with the flexibility to approximate almost any sale situation. TSPAS_SP encourages planners to explore several sale alternatives by relieving redundant data entry. Sale alternatives are quickly developed by offering default values as a starting point. These default values are not embedded in the TSPAS_SP software. Instead, default values customized for specific geographic areas reside in an accompanying “default” database.

The TSPAS Default Database Program (TSPAS_DDP) constructs and supports the default databases utilized by TSPAS_SP. TSPAS_DDP collects basic, planning information for a specific geographic area and stores this information in a database. Any sale being planned within this area would utilize these default values. The size of the area under “jurisdiction” of a particular default database is dictated solely by the local conditions. In one case, a single default database may apply to an entire Forest Service Region. In another case, a Region may develop several databases, one for each of various portions of the Region. In yet another case, a Region may develop a default database for every Forest within the Region. Whatever the case, the default database furnishes the structure and geographic specificity found in TSPAS_SP.

Default databases developed through TSPAS_DDP determine the choices available in TSPAS_SP, as well as the default values. To illustrate, TSPAS_DDP collects the site preparation and regeneration methods applicable to the area specified. The cost associated with each of these methods is also provided. In TSPAS_SP, the sale planning team prescribes each cutting unit in the existing stand by, among other selections, choosing a site preparation method and a regeneration method. The

choices offered are the choices collected by TSPAS_DDP. When a cutting unit is appraised, TSPAS_SP retrieves the default cost associated with the site preparation method chosen and the default cost associated with the chosen regeneration method to calculate essential regeneration costs. TSPAS_SP displays this default value for essential regeneration which can be accepted or modified as appropriate.

The geographic-specific default data compiled by TSPAS_DDP reflects the local management practices, relieves field personnel of redundant data entry and becomes the foundation for all sales designed by TSPAS_SP. A well-developed default database promotes the easy development of timber sale alternatives. Since the default data represents the heart and soul of TSPAS_SP, we recommend the default database coordinator be familiar with TSPAS_SP and its operation, as well as TSPAS_DDP.

We refer to the default database coordinator responsible for building and maintaining the default database(s) as “TIM,” the TSPAS Information Manager. Most likely, the TIM will be centrally located, having easy access to cost, price, yield, and appraisal information applying to the specified database area. Distribution of a default database to field offices would be accomplished over the DG communications network.

Both TSPAS_DDP and TSPAS_SP were developed for the Forest Service’s Data General computer system and utilize the Oracle database software. TSPAS_DDP is primarily programmed in ORACLE*Forms, although portions are written in FORTRAN. This manual covers the operation of TSPAS_DDP only. See Schuster and others (1995), for the operation of TSPAS_SP. Instructions for acquiring and installing TSPAS_DDP and TSPAS_SP are in appendix A.

This user’s guide provides general direction and detailed, step-by-step instructions for the construction of a TSPAS default database. First the general rules, conventions, and screen operations are presented. Next, each of the menus and data-entry screens accessed via those menus are discussed. Where appropriate, the significance and use of specific data items are identified. Additionally, this manual contains five appendices: appendix A provides instructions for acquiring and installing TSPAS_DDP and TSPAS_SP; appendix B is a glossary of terms used in TSPAS_DDP and TSPAS_SP; appendix C provides an alphabetical listing of TSPAS_DDP error and warning messages; appendix D describes the computations made for the TSPAS_SP reports; and appendix E provides a summary of the data items needed in a TSPAS default database.

Rules and Conventions

Multiple Default Databases—TSPAS_DDP can store and access many default databases, each having its own name. Multiple databases provide the ability to develop separate databases for specific geographic areas. They also allow updating default data over time without modifying existing default databases, which may be needed intact for ongoing analyses.

Multiple TE Appraisal Models—Multiple TE models are permitted within each default database; multiple equations for the equation-based approach, or multiple adjustment sets for the adjusting-average approach. Multiple TE models allow the TE appraisal information to be modified more frequently than the other information stored in the default database. The TIM saves a TE model after entering all model information to preserve the data integrity. TSPAS_SP can only access the saved models

contained within a locked default database. Models can be “unsaved” as long as they are not used in a TSPAS_SP sale. (Model updates can also be accomplished by copying a saved model and modifying the new one.)

Locking a Default Database—A default database can be modified freely until the database is locked. The TIM locks a database after completing data entry to preserve data integrity and to permit access by TSPAS_SP. A locked default database cannot be modified until it is unlocked. However, when a default database used in a TSPAS_SP sale is unlocked, TSPAS_DDP prohibits some modifications to preserve data consistency within the sale.

Function Keys—To the extent possible, TSPAS_DDP function keys follow the Data General CEO function key format. Some function keys are generally available and will always operate in TSPAS_DDP. Other function keys have limited availability. For example, INDEX operates only in data entry fields having a relevant list of previously-entered codes or names. Reminder messages located at the bottom of the screen specify which “limited availability” function keys are appropriate. Typically there are no reminders provided for the “generally available” function keys. The TSPAS_DDP function keys, their availability (asterisks “*” denote generally available keys), and their operation are described in the table below.

Function	Key	Description
BACKFIELD	S-F11	Moves cursor to the previous data field.
CANCEL/EXIT	* F11	Exits screen or lower-box. Cursor moves to (a) the previous menu, or (b) the top box when issued in the lower box of two-box screens.
DELETE	* F9	Deletes an entire line of editable data on screen.
DELETE CHARACTER	* F8	Deletes the character the cursor is on.
DELETE COMPONENT	S-F9	Deletes the TE model component selected.
EXECUTE	* F1	Saves data entered. Then cursor moves to (a) the previous menu, or (b) the top box when issued in the lower box of two-box screens.
HELP	S-F1	Lists all components of a TE model.
INDEX	S-F2	Lists relevant codes or names.
INSERT (mode)	* F7	“On/off” toggle: when “on” characters are inserted, when “off” characters are typed over.
NEXT SCREEN	F4	Advances the portion of a list displayed on the screen in scrolling a field.
PAGE DOWN	C4	Moves cursor from the top to lower box in two-box screens.
PAGE UP	C2	Moves cursor from the lower to top box in two-box screens.
PREVIOUS SCREEN	F3	Displays the previous portion of a list on the screen in a scrolling field.
QUICK-OFF	* C-S-F1	Terminates the program.
REMAINDER	S-F6	Lists the items still requiring information.

(Note: asterisks “*” denote generally available keys.)

Cursor Movement Within Single-Box Screens—Exhibit 1 shows typical single-box screens. Cursor movement within a data field is accomplished with the right and left arrow keys. Use the up and down arrow keys for vertical movement, and NEWLINE and BACKFIELD (S-F11) to move across fields. PREVIOUS SCREEN (F3) and NEXT SCREEN (F4) are used to change the portion of lists displayed on the screen. CANCEL/EXIT (F11) returns the cursor to the previous menu and QUICK-OFF (C-S-F1) terminates the program. If unsaved edits have been made in the screen prior to selecting either CANCEL/EXIT or QUICK-OFF, the following question appears:

Do you want to commit the changes you have made? _

Responding “Y” saves the data entered since accessing the screen, while “N” results in not saving these data. EXECUTE (F1) saves the data and returns the cursor to the previous menu.

Cursor Movement Within Two-Box Screens—The two-box screen format is illustrated by Exhibit 2. Information categories are specified in the top box with detailed information for that category entered in the lower box. The lower box is accessed by NEWLINE after the last field or by PAGE DOWN (C4). For example, a timber product is specified in the top box of the General Appraisal Information screen (Exhibit 2) and the appraisal information for that product are entered in the lower box.

Cursor movement within the lower box is the same as single-box screens. EXECUTE (F1) saves the data entered in the lower box and returns the cursor to the top box. CANCEL/EXIT (F11) returns the cursor to the top box, either saving changes or not. If unsaved edits have been made in the lower box prior to selecting CANCEL/EXIT, the following question appears:

Do you want to commit the changes you have made? _

Exhibit 1—example of a 1-box screen

TIMBER SPECIES

CODES	DESCRIPTION
C	CEDAR
GF	GRAND FIR
AF	ALPINE FIR
L	LARCH
S	SPRUCE
LPP	LODGEPOLE PINE
WP	WHITE PINE
PP	PNDEROSA PINE
DF	DOUG FIR
HE	HEMLOCK

Enter codes for species or species groups and optional descriptions

Exhibit 2—example of a 2-box screen

GENERAL APPRAISAL INFORMATION

Base Year: 1994

TIMBER PRODUCT: SAWTIMBER		UNITS: MBF	CUFT per UNIT: 167
Enter timber product code			
TIMBER SPECIES -----	PRODUCT PRICE -----	OVERRUN/ RECOVERY % -----	MINIMUM BID RATE/MBF -----
DF	240	1.5	6.00
HE	240	1.38	1.00
GF	200	1.5	1.00
C	450	1.18	10.00
AF	200	1.37	1.00
L	240	1.46	6.00
S	270	1.26	6.00
Enter per-unit data for timber species for each timber product			

A response of “N” moves the cursor to the top box without saving any changes, while “Y” saves the modifications and repositions the cursor to the top box.

After returning to the top box, select another information category, or exit the screen. Both EXECUTE (F1) and CANCEL/EXIT (F11) return the cursor to the previous menu.

Deleting Data on Screens—Deleting categories in a default database results in also deleting any information directly tied to that category. For example, some appraisal information are entered and stored by species. If a species were deleted, then all appraisal information associated with that species is also deleted. When this situation arises, TSPAS_DDP lists the related data that (if it exists) will also be deleted and asks if you wish to continue. Answering “N” returns the cursor to where the delete was issued. A “Y” removes the category from the screen before returning the cursor. The information, however, is not actually deleted from the database until EXECUTE is selected. If CANCEL/EXIT is selected instead, TSPAS_DDP asks if the changes are to be made to the database. Answering “N” will undo any deletes (and/or any other changes) made since entering the screen. Answering “Y” implements all changes to the database.

TSPAS_DDP does not permit deleting information from a default database being used by a TSPAS_SP sale. There are two exceptions to this rule. First, any additions made to a list which have not been saved in the database, can be deleted prior to exiting the screen. Second, a TE appraisal adjustor/variable not included in any TE model (used or unused by a sale) can be deleted from the master list.

Executing TSPAS_DDP

TSPAS_DDP can be executed in any IS/CLI drawer and folder which accesses ORACLE and the TSPAS_DDP program. The program is initiated by typing “TSPAS_DDP” on the command line. After completing initialization procedures TSPAS_DDP requests a default database name:

Enter Default Database Name: _____

(INDEX lists the existing default database names.) The Main Menu is accessed if an existing database is specified. If a new name is typed, the following message appears:

Default Database name does not exist. Create a new Database? (Y/N): _

Answering "N" returns the cursor to the previous question. Answering "Y" displays the General Information screen (Exhibit 3) to collect data for the new database.

Main Menu

The Main Menu differs slightly, depending on the appraisal methods selected for the existing and regenerated stands. Exhibit 4 shows the Main Menu when TE appraisal is selected for either the existing or regenerated stand (or both). If RV appraisal is selected for both stands, **Existing Stand Appraisal** and **Regenerated Stand Appraisal** are combined into a single option called **Appraisal Information**. In general, we advise following the order of the menu system because data collected on some screens will be used later in other screens. **Lists and Categories**, in particular, collects data used elsewhere.

General Information

The General Information screen (Exhibit 3) is first completed when a new database is created. It is also accessed from the Main Menu by selecting **General Information**. **Effective date**, the first item on this screen, records the month and year the default database is developed. This date is displayed with the database names when listed via INDEX. The next item, **base year**, is important because all dollar values (costs and prices) entered in the default database must be expressed in "base-year" dollars.

Exhibit 3

GENERAL INFORMATION

TSPAS Default Database name: TE DEFAULT

Effective date -- Month: 1
Year: 1994

Base year for costs and prices, except for
Transactions Evidence appraisal information: 1994

Discount rate (real): 4.00 %

Appraisal method for existing stand: 3
(1)RV (2)TE: Equation-Based (3)TE: Adjusting-Averages

Appraisal method for regenerated stand: 3
(1)RV (2)TE: Equation-Based (3)TE: Adjusting-Averages

Enter information as appropriate

Exhibit 4

MAIN MENU

1. General Information
2. Lists and Categories
3. Costs
4. General Appraisal Information
5. Existing Stand Appraisal
6. Regenerated Stand Appraisal
7. Regenerated Stand Prescriptions
8. Nontimber Output Schedules
9. Price and Cost Changes
10. Verify and Lock Database
11. Utilities
12. End Session

Enter choice:

Exhibit 5

LISTS AND CATEGORIES

1. Timber Species
2. Timber Products
3. Timber Product Information
4. Potential Sale Requirements
5. Logging Methods
6. Logging Cost Categories
7. Timber Strata Field Names
8. Timber Strata Field Codes
9. Timber Strata Definitions
10. Management Intensity Descriptions
11. Nontimber Output Definitions
12. Nontimber Output Information
13. Return to Main Menu

Enter choice:

All TSPAS_SP report calculations discount future values using the **Discount rate (real)**, listed next. Real discount rates are net of inflation. Finally, the appraisal methods for the existing and regenerated stands are specified. The choices are **(1)RV (2)TE: Equation-Based (3)TE: Adjusting-Averages**. Appraisal method selection affects which data must be entered. These differences are reflected in the TSPAS_DDP menus.

Lists and Categories Menu

The Lists and Categories menu (Exhibit 5) is accessed by selecting **Lists and Categories** on the Main Menu. Information entered from this menu are used throughout both the TSPAS_DDP and TSPAS_SP programs. For this reason, the TIM should carefully consider the information entered on

these screens. TSPAS_DDP provides a long **DESCRIPTION** field for each code or category. These descriptions can be printed from TSPAS_SP and are used to communicate important information to the TSPAS_SP user. The Lists and Categories menu in Exhibit 5 applies when RV appraisal is selected for either the existing or regenerated stand. **Logging Methods Codes** and **Logging Cost Categories** are not included in this menu when TE appraisal is selected for both stands.

Timber Species—The screen for defining species codes is shown in Exhibit 6, panel A. Codes can be entered for individual species or groups of species. We recommend using the local naming convention. Include all necessary species because TSPAS_SP appraisal is restricted to the species specified here.

Timber Products—Timber product codes are defined on the screen shown in Exhibit 6, panel B. Only the timber products defined here can be appraised using the selected RV or TE appraisal method in TSPAS_SP. Therefore, include all timber products sold by the Forest Service within the geographic area applicable to this default database.

Timber Product Information—The Timber Product Information screen (Exhibit 6, panel C) collects information pertaining to the timber products defined earlier. The **UNIT OF MEASURE** for each product should be standard Forest Service units, using standard abbreviations. **MINIMUM DEPOSIT TO TREASURY** is the minimum dollar amount per unit volume harvested that must be deposited with the Treasury. TSPAS_SP uses **AVERAGE STUMPAGE PRICE/UNIT** as the default stumpage value for secondary timber products. (Each TSPAS_SP sale specifies a “primary” timber product produced by the sale. If a sale produces other timber products as well, these are designated as “secondary” timber products.) Express prices in base-year dollars. **CUBIC FEET PER UNIT** converts costs from the units of measure in which they were

Exhibit 6

Panel 6-A

TIMBER SPECIES

CODES	DESCRIPTION
C	CEDAR
GF	GRAND FIR
AF	ALPINE FIR
L	LARCH
S	SPRUCE
LPP	LODGEPOLE PINE
WP	WHITE PINE
PP	PNDEROSA PINE
DF	DOUG FIR
HE	HEMLOCK

Enter codes for species or species groups and optional descriptions

Panel 6-B

TIMBER PRODUCTS

CODE	DESCRIPTION
SAWTIMBER	SAWTIMBER
POST-POLE	POSTS AND POLES
PULPWOOD	PULPWOOD

Enter timber product codes and optional descriptions

Panel 6-C

TIMBER PRODUCT INFORMATION

Base Year: 1994

TIMBER PRODUCT	UNIT OF MEASURE	MINIMUM DEPOSIT TO TREASURY	AVERAGE STUMPAGE PRICE/UNIT	CUBIC FEET PER UNIT
SAWTIMBER	MBF	.50	20.00	200
POST-POLE	PIECE	.05	.50	10
PULPWOOD	CORDS	.20	10.00	70

Provide information specified for each timber product

Select a timber product to provide units of measure for:

1. Cost-related information: SAWTIMBER Units: MBF
2. Regenerated stand yield data: SAWTIMBER Units: MBF

Panel 6-D

POTENTIAL SALE REQUIREMENTS

REQUIREMENTS	DESCRIPTION
SKID TR SEED	SEEDING SKID TRAILS & TEMPORARY ROADS
WILDL TREES	LEAVE WILDLIFE TREES OR SNAGS
HAUL RESTRIC	SEASONAL OR WEEKDAY HAULING RESTRICTIONS
WILDL COVER	SEED & PLAND FOR WILDLIFE FORAGE AND/OR COVER
SLASH REMOVE	SLASH REMOVAL ON TRAILS OR STREAMS
CROSS DITCH	CROSS DITCH OR WATERBAR SKID TRAILS OR TEMP. ROADS
ROAD CLOSURE	ROAD CLOSURE OR GATES
DIR FELLING	DIRECTIONAL FELLING
WHOLE TREE	WHOLE TREE LOGGING
SNOW REMOVAL	SNOW REMOVAL REQUIRED
CORR WIDTH	CORRIDOR WIDTH CONSTRAINT
CORR SPACE	CORRIDOR SPACING CONSTRAINT

Enter up to 20 potential sale requirements and optional descriptions

entered to the units of measure for other timber products. The lower box requests a timber product for the cost-related data. "Per unit" costs are entered using the specified product's unit of measure. The lower box also requests a timber product for the regenerated stand harvest yields.

Potential Sale Requirements—Exhibit 6, panel D displays the screen for entering up to 20 potential sale requirements. Potential sale requirements provide descriptive information only. In TSPAS_SP, the Harvest Prescriptions (Existing Stand) screen displays these requirements. Any requirement marked appears as descriptive information on the TSPAS_SP appraisal screens.

Logging Methods (RV appraisal only)—Exhibit 7, panel A displays the Logging Methods screen. Costs for felling and bucking, and skidding and loading will be entered for the logging methods entered on this screen. If RV was selected for the regenerated stand appraisal method, the TIM will choose one of these logging methods for each harvest entry specified in the Regenerated Stand Prescription screen (Main Menu). If RV was selected as the existing stand appraisal method, the TSPAS_SP

Exhibit 7

Panel 7-A

LOGGING METHODS

	CODE	DESCRIPTION
	-----	-----
1.	TRACTOR	TRACTOR SKIDDING ONLY
2.	CABLE	CABLE LOGGING
3.	SKYLINE-S	SKYLINE < 2000 FT.
4.	SKYLINE-L	SKYLINE > 2000 FT.
5.	HELICOPTER	HELICOPTER LOGGING

Enter up to 5 logging method codes and optional descriptions

Panel 7-B

LOGGING COST CATEGORIES

Enter a title for categorizing logging costs (e.g. average DBH): LOG COST

	LOG COST CATEGORY	DESCRIPTION
	-----	-----
1.	LOW	LOW COST PER MBF CATEGORY
2.	MEDIUM	MEDIUM COST PER MBF CATEGORY
3.	HIGH	HIGH COST PER MBF CATEGORY
4.		
5.		

Enter up to 5 categories & optional descriptions for the logging costs

user will choose one of these logging methods in developing the existing stand prescription for each cutting unit. This choice determines the default costs that appear on the TSPAS_SP RV appraisal screen. Enter up to five logging method codes.

Logging Cost Categories (RV appraisal only)—Exhibit 7, panel B displays the Logging Cost Categories screen. Felling and bucking, and skidding and loading costs will be entered later for these logging cost categories and the logging methods (defined earlier). If RV was selected for the regenerated stand appraisal method, the TIM will choose one of these categories for each harvest entry specified in the Regenerated Stand Prescription screen (Main Menu). If RV was selected as the existing stand appraisal method, the TSPAS_SP user will select one of these logging cost categories in developing the existing stand prescription for each cutting unit. This selection will determine the default values for logging costs on the TSPAS_SP RV appraisal screen. In the top box, enter a short description of the basis for the logging cost categories. This should be a way of categorizing logging cost other than logging method. In the lower box, enter up to five logging cost categories.

Timber Strata Field Names—Timber Strata Field Names screen appears in Exhibit 8, panel A. Regenerated stand data are entered by timber strata. Timber strata represent physical site situations that are sufficiently homogeneous as to constitute distinct timber management opportunities with specific output quantities. A timber strata is comprised of up to four parts called “strata fields.” One, two, three, or all four strata fields may be used in defining timber strata. In this screen describe each of the fields to be used (such as HAB TYP—Habitat type). Valid codes for each of the active strata fields will be entered later.

Timber Strata Field Codes—Timber Strata Field Codes are defined on the screen displayed in Exhibit 8, panel B. In the top box enter a strata field name defined earlier (Timber Strata Field Names screen, Lists & Categories menu). In the lower box specify the valid codes for the strata field selected. Enter codes for each of the strata fields defined in the Timber Strata Field Names screen.

Timber Strata Definitions—The Timber Strata Definitions screen (Exhibit 8, panel C) builds the timber strata for the regenerated stands. When accessed, the strata field names defined on the Timber Strata Field Names screen are displayed as column headings. A timber stratum is built by entering valid codes for each of the active strata fields. (INDEX lists the valid codes for the particular strata field.) Each line or row on this screen defines a unique timber stratum.

Management Intensity Descriptions—The screen for defining management intensity options for the regenerated stand is shown in Exhibit 9. Management intensity classifies the management prescriptions to be developed on the Regenerated Stand Prescription screen (Main Menu). In TSPAS_SP, after selecting a timber strata, users choose a defined management intensity option to assign a prescription to the regenerated stand. Enter a 1-character code, short name, and description for each management intensity option defined. Up to ten are permitted.

Exhibit 8

Panel 8-A

TIMBER STRATA FIELD DESCRIPTIONS

	FIELD NAME -----	DESCRIPTION -----
1.	FOR TYPE	FOREST TYPE
2.	PROD CLASS	PRODUCTIVITY CLASS
3.		
4.		

Enter up to 4 field names & optional description, used to define timber strata

Panel 8-B

TIMBER STRATA FIELD CODES

TIMBER STRATA FIELD NAME: FOR TYPE

Enter timber strata field name

FOR TYPE -----	CODE -----	DESCRIPTION -----
D/L		DOUGLAS FIR / LARCH FOREST TYPE
DF		DOUGLAS FIR FOREST TYPE
LPP		LODGEPOLE PINE FOREST TYPE
MC		MIXED CONIFER FOREST TYPE
PP		PONDEROSA PINE FOREST TYPE

Enter codes for timber strata field listed & optional descriptions

Panel 8-C

TIMBER STRATA DEFINITIONS

----- STRATA FIELDS -----			
1 FOR TYPE -----	2 PROD CLASS -----	3 -----	4 -----
DF	HGH		
DF	MED		
DF	LOW		
D/L	HGH		
D/L	MED		
D/L	LOW		
MC	HGH		

Define valid timber strata by specifying combinations of strata field codes. (NOTE: Select a code for each defined strata field)

Exhibit 9

MANAGEMENT INTENSITY DESCRIPTIONS

CODE	DEFINITION	DESCRIPTION
L	Low	EVEN-AGED MANAGEMENT WITH NATURAL REGENERATION
M	Medium	EVEN-AGED MGT, COMM THIN, SOME ARTIFICIAL REGEN
H	High	... SAME AS "M" PLUS PRE-COMMERCIAL THINNING
S	Special	UNEVEN-AGED MANAGEMENT

Enter optional descriptions for each management intensity listed

Nontimber Output Definitions—The list of quantified nontimber outputs is developed on the screen shown in Exhibit 10, panel A. Default quantities (entered later) for these nontimber outputs will be available to TSPAS_SP. Nontimber outputs are optional. In addition, the TSPAS_SP user may define new outputs not included in the default database, but default quantities are not provided.

Nontimber Output Information—The Nontimber Output Information screen (Exhibit 10, panel B) collects information pertaining to the nontimber outputs defined on the Nontimber Output Codes screen. Provide the **UNIT OF MEASURE** and **VALUE PER UNIT** for each of the nontimber output codes displayed. Enter value per unit in base-year dollars. In TSPAS_SP, the units of measure and value per unit are displayed in the Select 8 Describe Nontimber Outputs screen (Sale Data menu) when the nontimber output is specified for the sale.

Costs Menu

The Costs menu, accessed from the Main Menu, varies depending on the appraisal methods chosen. Exhibit 11 presents the Costs Menu when RV appraisal is selected for either the existing or the regenerated stand (or both). The **Felling and Bucking Costs** and **Skidding and Loading Costs** choices are absent when TE appraisal is chosen for both stands. The cost information collected here becomes the default appraisal information in TSPAS_SP, for both existing and regenerated stands. Express all costs in base-year dollars.

Logging Cost Screens (RV appraisal only)—Exhibit 12, panels A and B show the Felling and Bucking Costs and Skidding and Loading Costs screens, respectively. **LOG COST** lists the logging cost categories defined, and **LOGGING METHOD** lists logging method codes defined. Enter the amount for each combination in dollars for the volume units specified (volume units are specified in the Timber Product Information screen, Lists & Categories menu). When the existing stand designates RV appraisal, the TSPAS_SP user selects a logging method and a logging cost category as part of a cutting unit's prescription. Using these selections,

Exhibit 10

Panel 10-A

NONTIMBER OUTPUT DEFINITIONS

CODE	DESCRIPTION
-----	-----
H2O YIELD	WATER YIELD

Enter nontimber output codes and optional descriptions

Panel 10-B

NONTIMBER OUTPUT INFORMATION

Base Year: 1994

OUTPUT CODE	UNIT OF MEASURE	VALUE PER UNIT
-----	-----	-----
H2O YIELD	AC-FEET	2.00

Provide information specified for each nontimber output

Exhibit 11

COSTS

1. Felling and Bucking Costs
 2. Skidding and Loading Costs
 3. Site Preparation Costs
 4. Regeneration Costs
 5. Stand Management Costs
 6. USFS Costs for Current Entry
 7. Forest-wide Average Costs
 8. Return to Main Menu
-

Enter choice:

Exhibit 12

Panel 12-A

FELLING AND BUCKING COSTS

Base Year: 1994

Costs expressed as dollars per MBF of SAWTIMBER

LOG COST	----- LOGGING METHOD -----				
	TRACTOR	CABLE	SKYLINE-S	SKYLINE-L	HELICOPTER
LOW	21.74	21.74	21.74	21.74	21.74
MEDIUM	26.35	26.35	26.35	26.35	26.35
HIGH	33.07	33.07	33.07	33.07	33.07
Enter felling and bucking costs per unit for logging methods					

Panel 12-B

SKIDDING AND LOADING COSTS

Base Year: 1994

Costs expressed as dollars per MBF of SAWTIMBER

LOG COST	----- LOGGING METHOD -----				
	TRACTOR	CABLE	SKYLINE-S	SKYLINE-L	HELICOPTER
LOW	40.26	58.26	71.26	78.26	155.26
MEDIUM	49.65	71.65	81.65	89.65	178.65
HIGH	67.93	96.93	98.93	108.93	217.93
Enter skidding and loading costs per unit for logging methods					

TSPAS_SP retrieves the felling/bucking cost and the skidding/loading cost from these tables and displays the two default costs on the RV appraisal screen. These costs are similarly used when the regeneration stand specifies RV appraisal.

Site Preparation and Regeneration Cost Screens—Exhibit 13, panels A and B show the screens accessed from the Costs menu by selecting **Site Preparation Costs** and **Regeneration Costs**, respectively. Enter up to ten cost categories on each of these screens. Under **CATEGORY** enter a short description identifying the cost category and enter the dollar

amount per acre under **COST/AC**. In TSPAS_DDP, the TIM chooses a site preparation category and a regeneration category for each harvest entry specified in the Regenerated Stand Prescription screen (Main Menu). In TSPAS_SP, these categories become the available options in the Harvest Prescriptions (Existing Stand) screen. Choosing a site preparation method and a regeneration method determines the essential regeneration default value used in timber appraisal.

Stand Management Costs—The Stand Management Costs screen (Exhibit 14) collects the cost of treatments, other than harvesting, applied to regenerated stands. Examples include pre-commercial thinning, pruning, and fertilizing. Enter up to five categories. Under **CATEGORY** enter a short description identifying the stand management cost category.

Exhibit 13

Panel 13-A

SITE PREPARATION COSTS

Base Year: 1994

CATEGORY	DESCRIPTION	COST/AC
SCARIFY	SCARIFY SITE TO EXPOSE MINERAL SOIL	85.80
BURN	BROADCAST BURN SITE TO REMOVE DUFF	88.00
SCAR/BURN	SCARIFY AND BURN SITE	113.30
CHEMICAL	CHEMICALLY TREAT SITE	132.00
HAND PILE	HAND PILE AND BURN	160.00
TRCTR PILE	TRACTOR PILE AND BURN	105.00
LOP/SCTR	LOP AND SCATTER	45.00
NONE	NO SITE PREPARATION	0.00

Enter up to 10 site preparation cost categories, optional descriptions & costs

Panel 13-B

REGENERATION COSTS

Base Year: 1994

CATEGORY	DESCRIPTION	COST/AC
MACH PLANT	MACHINE PLANT	110.00
HAND PLANT	HAND PLANT	130.00
NATURAL	NATURAL REGENERATION	0.00
INTERPLANT	NATURAL REGENERATION WITH INTERPLANTING	80.00
SEEDING	BROADCAST SEEDING	60.00
NONE	NO REGEN ACTIVITIES (FOR INTERMEDIATE HARVESTS)	0.00

Enter up to 10 regeneration cost categories, optional descriptions, and costs

Exhibit 14

STAND MANAGEMENT COSTS (REGENERATED STAND)

Base Year: 1994

CATEGORY	DESCRIPTION	COST/AC
PRE-C THIN	PRE-COMMERCIAL THINNING	220.00
FERTILIZE	FERTILIZING	45.00
PRUNE	PRUNE THE FIRST 16 FT LOG	85.00

Enter up to 5 regn stand management categories, optional descriptions & costs

Under **COST/AC** enter the amount in dollars per acre. In TSPAS_DDP, these categories will be available when specifying a regenerated stand prescription. In TSPAS_SP, after a regenerated stand prescription is selected, the short descriptions and dollar amounts of these costs are displayed, if applicable. TSPAS_SP allows users to edit only the dollar amount of these costs.

USFS Costs for Current Entry—The screen for entering the USFS Costs for Current Entry is shown in Exhibit 15. These USFS costs apply only to the current entry in the existing stand, and TSPAS_SP users specify the year(s) in which they occur. Under **CATEGORY** enter a short description identifying the cost category. The dollar amounts are entered in either the “dollars per acre” column, or the “dollars per unit volume” column. (The “per unit volume” units of measure are specified on the Timber Product Information screen, Lists & Categories menu.) **BASIS** determines how the costs are applied in TSPAS_SP. When cost is “per unit volume”: **T** means the cost is calculated using the total sale volume and applied to the year specified in TSPAS_SP; **Y** means the cost is calculated using only the volume harvested in the year(s) specified in TSPAS_SP and is applied to that year(s). To illustrate the difference, assume Sale Administration is specified as a cost per unit volume with **BASIS** set to **T** (total sale volume). If the TSPAS_SP user specifies years 2 and 3 for this cost, the total dollar cost occurring in year 2 is the per unit cost multiplied by the total harvest volume of the sale. The cost applied in year 3 is the same amount. If instead the **BASIS** were **Y** (harvest volume in the year specified), the total cost occurring in year 2 is the per unit cost multiplied by the harvest volume in year 2, and the total cost in year 3 is the per unit cost times the harvest volume in year 3. When USFS cost is a “per acre cost,” **BASIS** always equals **T**, indicating that cost is always applied to the total number of acres summed across the cutting units.

Forest-Wide Average Costs Screen—Exhibit 16 shows the screen for entering various, forest-wide average costs when RV appraisal is selected for the existing stand and/or the regenerated stand. When TE appraisal is selected for both the existing and the regenerated stand, only the **Specified**

Exhibit 15

USFS COSTS FOR CURRENT ENTRY

Base Year: 1994

CATEGORY	DESCRIPTION	\$/ACRE	\$/MBF	BASIS
ADMIN	ADMINISTRATION COST		0	T
ACRE1	PER ACRE COST 1	40		T
ACRE2	PER ACRE COST 2	60		T
TMBF1	PER TOTAL MBF COST 1		15	T
TMBF2	PER TOTAL MBF COST 2		5	T
YMBF1	PER YEAR MBF COST 1		12	Y
YMBF2	PER YEAR MBF COST 2		8	Y

Enter up to 10 USFS cost categories, optional description, either cost/unit or cost/acre, and harvest basis.

Exhibit 16

FOREST-WIDE AVERAGE COSTS

Base Year: 1994

1. Haul Costs/MBF	30.00	
2. Profit & Risk (%).....	11.00	%
3. Road Maintenance Costs/MBF	5.00	
4. Temporary Development Costs/MBF	1.00	
5. Environmental Protection Costs/MBF	2.36	
6. Specified Road Costs/MBF (Future Entries) ..	0.00	
7. USFS Costs/MBF (Future Entries).....	15.00	

Enter per unit forest-wide average costs

Road Costs, and the **USFS Costs for future entries**, are displayed. In TSPAS_SP, **Haul Costs**, **Profit & Risk**, **Road Maintenance Costs**, **Temporary Development Costs**, and **Environmental Protection Costs** are all displayed on the RV appraisal screens for both the existing and regenerated stand. **Specified Road Costs** appear in both TE and RV appraisal for future entries in the existing stand, and for the regenerated stand. **USFS Costs for future entries** appears on future entry appraisal screens (for both RV and TE). USFS costs are ultimately subtracted from sale revenues to calculate a net value for the future entry. As such, include the appropriate Forest Service administrative and overhead costs.

General Appraisal Information

The General Appraisal Information screen (Exhibit 17) collects information used by both appraisal methods and is accessed from the Main Menu. Information is entered by timber product and species. In the top box, specify a previously defined timber product (Timber Product Codes screen, Lists & Categories menu). Note, INDEX lists all timber products and REMAINDER lists the timber products still requiring general appraisal information. In the lower box include all relevant species for the specified product. **PRODUCT PRICE** is the final product price for the species specified, expressed in the timber product units of measure. For example, if final product was lumber, enter lumber price in terms of thousand board feet, lumber tally for each relevant species. TSPAS_SP converts product price to log scale using the product recovery factor, **OVERRUN/RECOVERY %**. If the final product measure is 25 percent greater than its log scale measure, enter 1.25. Using product price and overrun, TSPAS_SP projects values for future entries in the existing stand as well as the regenerated stand, in both RV and TE appraisal. TSPAS_SP uses **MINIMUM BID RATE** in calculating base rate for all entries in both the existing and regenerated stands, in both TE and RV appraisal screens.

RV Appraisal Information

The screen for collecting RV appraisal information is shown in Exhibit 18. The Main Menu title and the title for this screen vary, depending on the appraisal methods selected. When RV is selected for both the existing and regenerated stands, the title is **Appraisal Information**. When RV is selected for only the existing stand, it is **Existing Stand Appraisal**, and when RV is selected for only the regenerated stand, it is **Regenerated Stand Appraisal**. Appraisal information must be provided for each defined timber product. Note, INDEX lists all timber products and REMAINDER lists the timber products still requiring information.

Exhibit 17

GENERAL APPRAISAL INFORMATION

Base Year: 1994

TIMBER PRODUCT: SAWTIMBER		UNITS: MBF	CUFT per UNIT: 167
Enter timber product code			
TIMBER SPECIES	PRODUCT PRICE	OVERRUN/RECOVERY %	MINIMUM BID RATE/MBF
DF	240	1.5	6.00
HE	240	1.38	1.00
GF	200	1.5	1.00
C	450	1.18	10.00
AF	200	1.37	1.00
L	240	1.46	6.00
S	270	1.26	6.00
Enter per-unit data for timber species for each timber product			

Exhibit 18

STAND APPRAISAL

Base Year: 1994

TIMBER PRODUCT: SAWTIMBER UNITS: MBF CUFT per UNIT: 167

Enter timber product code

TIMBER SPECIES -----	MFG COST -----	BID PREMIUM -----
S	124.69	31.06
LPP	99.94	31.06
WP	137.50	31.06
PP	98.90	31.06
DF	90.52	31.06
HE	84.54	31.06
GF	84.54	31.06
C	137.31	31.06

Enter per-unit data by timber species for each timber product

In the top box, specify a previously defined timber product (Timber Product Codes screen, Lists & Categories menu). The species codes entered on the General Appraisal Information screen (Main Menu) for the product specified appear in the lower box. **MFG COST**, expressed as dollars per unit of measure, log scale, includes all relevant manufacturing costs associated with processing delivered logs into a product ready for shipping. **BID PREMIUM**, also called "overbid," is the excess of "high bid" over "advertised rate." Enter bid premium on the basis of dollars per unit of measure, log scale.

TE Appraisal Information for the Existing Stand

TSPAS provides two TE appraisal approaches; "equation-based" and "adjusting-averages." The equation-based approach makes a statistical estimate of a dependent variable (such as high bid), using independent variables which reflect sale characteristics, market conditions, etc. The adjusting-averages approach also specifies an appraisal-related adjustor of concern, such as high bid. An overall mean for this adjustor is entered and is then subjected to a series of adjustments reflecting unique features of the sale being appraised. The TE approach is selected on the General Information screen accessed from the Main Menu. In the following appraisal discussions, consult the appropriate section: Equation-Based TE Information or Adjusting-Averages TE Information.

Equation-Based TE Information (Existing Stand)

Data collection screens are accessed by selecting **Existing Stand Appraisal** on the Main Menu. After selection, TSPAS_DDP requests the TE equation name:

Enter TE equation name:

When a new name is specified, the following appears:

TE equation name does not exist. Create a new equation? (Y/N): _

Answering “Y” accesses the TE General Information screen, while “N” returns the cursor to the model name. If the model specified has been previously entered, but not yet saved, TSPAS_DDP displays the Existing Stand Appraisal menu. Saving a model indicates that all information has been provided and the model is ready for use in TSPAS_SP. When a saved model is specified, TSPAS_DDP searches the TSPAS_SP database for any sale using the model. If a sale is found, TSPAS_DDP denies access to the model. In this case, the model information can only be accessed by either copying the model to a new name or deleting every sale using the model in TSPAS_SP. If no sales use the model specified, TSPAS_DDP asks:

Existing stand model has been saved. Unsave the model? (Y/N): _

Answering “Y” accesses the Existing Stand Appraisal menu, while “N” places the cursor back to the model name. Note, there are two reserved model names: “REGEN STD” and “IMPORT.”

The Existing Stand Appraisal menu for equation-based TE is shown in Exhibit 19. The screens accessed from this menu are described below.

TE General Information—The TE General Information screen (Exhibit 20) is accessed when a new TE equation name is specified, and secondly, when the first option on the Existing Stand Appraisal menu is chosen. The **Effective date** helps identify an equation. We suggest entering the date the equation was entered in the default database. The **Base year** identifies the year for which the equation estimates value. For example, if the base year is 1996, the value estimate is in 1996 dollars. The next two fields describe the **Dependent variable (predicted y)**. **Description** labels the value predicted by the TE equation and is displayed on the TSPAS_SP appraisal screen. Although the appraisal process ultimately calculates “predicted high bid,” the dependent variable need not be “predicted high bid.” A series of cost and bid adjustments (Cost and Bid Adjustments screen, Existing Stand Appraisal menu) may be used to convert the dependent variable to “predicted high bid.” Next enter the **Timber product** for which the TE equation estimates value. This must be one of the timber products defined on the Timber Product Codes screen (Lists & Categories menu).

Exhibit 19

EXISTING STAND APPRAISAL

1. TE General Information
2. Variable Codes and Type -- Master List
3. Regression Variable Information
4. Species-Specific Defaults
5. Cost and Bid Adjustments
6. Save Equation
7. Return to Main Menu

Enter Choice: 1

Variable Codes and Type—Master List—The Variable Codes and Type screen (Exhibit 21) creates a master list of variables available for any TE equation, in any default database. TE equations are restricted to using only variables defined on this list. The first two variables listed, TOTVOL and TOTAC, are “system” variables. When these are used in an equation, TSPAS_SP automatically calculates their value as cutting unit appraisal information is provided. **CODE** identifies variables, both in TSPAS_DDP and TSPAS_SP. Variable codes must begin with alphabetical

Exhibit 20

TE GENERAL INFORMATION

TE equation name: TE DEMO

Effective date -- Month: 1
Year: 1994

Base year: 1994

Dependent variable (predicted y) --

1. Description: GROSS VALUE
2. Timber product: SAWTIMBER Units: MBF

Enter TE equation information as appropriate

Exhibit 21

VARIABLE CODES AND TYPE -- MASTER LIST

CODE	UNITS	TYPE	DESCRIPTION
TOTVOL	MBF	2	Total sale volume. NOTE: units for SAWTIMBER
TOTAC	Acres	2	Total sale acres
SPLT	\$/MBF	1	SELLING PRICE FOR LUMBER (LUMBER TALLY)
%DFT	%	3	PERCENT Defect
ADBH_SP	INCHS	1	SPECIES-SPECIFIC VARIABLE FOR DIAMETER
ADBH	INCHS	4	AVERAGE DIAMETER AT BREAST HEIGHT
UPHAUL	MILES	4	UNPAVED MILES
%SKY	%	4	PERCENT OF VOLUME SKYLINE YARDED
BURNACRES	ACRES	2	NUMBER OF SPECIAL BURN ACRES IN SALE
SPECRD	MILES	3	MILES OF SPECIFIED ROAD
VOL_PER_AC	MBF	4	VOLUME PER ACRE
WWPA	INDEX	1	WWPA INDEX BY SPECIES
TOT_HT	FEET	4	TOTAL HEIGHT

Enter codes, units, variable type, and optional description for all independent variables used singly or in combination in the TE equation

characters and cannot contain embedded spaces or mathematical characters (*, /, +, -). Additionally, "LN" and "LOG" are unavailable for variable codes. **Units** specify the variable's unit of measure and are used for descriptive purposes only. Each variable is categorized by Type. In TSPAS_SP, TE data is entered for each cutting unit. These cutting unit data are accumulated to compute the sale-level appraisal value. How the data are accumulated depends on the Type of each variable. The four types are described below:

Type	Description
1	Species-Specific. The amounts for these variables are entered on a species-specific basis. In TSPAS_SP, a weighted average across species (weights based on species volumes) is used in the regression equation. Selling price, by species, for the final product provides an example.
2	Cutting Units Summed. For this variable type, TSPAS_SP sums the amounts entered for the cutting units to calculate the amount used for the sale alternative. The "system" variables, TOTVOL and TOTAC, are examples of Type 2 variables.
3	Cutting Unit = Sale. Here, TSPAS_SP stores one value for all cutting units in a sale alternative. (That is, if the value is changed in one cutting unit, it is changed for all the rest.) The value used for the sale alternative variable, then, is the one value stored for all cutting units. Type 3 variables measure sale aspects which cannot be directly associated with a cutting unit, for instance, sale-wide bidding method.
4	Weighted Average. To calculate the sale alternative value, TSPAS_SP takes a weighted average of the values entered for the cutting units. The weights are based on the total harvest volumes for each cutting unit. Average diameter and average harvest volume per acre are examples of Type 4 variables. Any variable not fitting Types 1, 2, or 3 should be assigned to this type.

Regression Variable Information—Exhibit 22, Panel A displays the screen where a TE appraisal equation is entered. The Regression Variable Information screen contains two data entry fields: **COEFFICNT** (for the regression coefficient) and the **EQUATION COMPONENT**. Because of screen limitations, TSPAS_DDP collects information for only one component at a time. An equation component can be a single variable from the master list or some relationship involving two or more variables. This allows for entering interaction terms and other regression terms involving more than one variable.

The equation **Intercept** is collected first. If the equation does not have an intercept, simply NEWLINE through the field (default value is zero). Equation components are entered next. First, enter the regression coefficient, then the equation component. As described earlier, the equation component can be a single variable, or any mathematical expression involving master list variables and the following operators:

Operator	Description
+	Add
-	Subtract or negative value
*	Multiply
/	Divide
**	Exponent
ln	Natural log
log	Log base 10

Exhibit 22

Panel 22-A

REGRESSION VARIABLE INFORMATION

	COEFFICIENT	EQUATION COMPONENT
	70.000	Intercept
1	2.500	LN (TOTVOL / TOTAC)

+-----+

| Enter coefficient and mathematical description |

| for each composite variable in the TE equation |

+-----+

Select HELP (S-F1) to list all components;DELETE (S-F9) to delete a component
 Select NEWLINE on blank line to process. INDEX (S-F2) for variable name list

Panel 22-B

REGRESSION VARIABLE INFORMATION

	COEFFICIENT	EQUATION COMPONENT
	70.000	Intercept
1	2.500	LN (TOTVOL / TOTAC)

+-----+

PROCESSED EQUATION COMPONENT:

[LN (TOTVOL / TOTAC)]

+-----+

Is this information correct (Y/N)? Y

+-----+

Select HELP (S-F1) to list all components;DELETE (S-F9) to delete a component

There must be an operator between any two variables, and between a variable that either precedes or follows terms enclosed in parentheses. Additionally, at least one blank space must follow the operators "ln" and "log."

After an equation component has been entered, TSPAS_DDP "reads" the component as a mathematical expression. This process is initiated by pressing NEWLINE on either a blank component line, or on the last component line. If no errors are detected, an expanded component is written

in a window at the bottom of the screen (Exhibit 22, Panel B). The component expansion illustrates how the relationship will be mathematically processed. [Note, $\text{VAR1} + \text{VAR2} * \text{VAR3}$ which would be “read” as $\text{VAR1} + (\text{VAR2} * \text{VAR3})$ does not generally produce the same results as $(\text{VAR1} + \text{VAR2}) * \text{VAR3}$.] After the expanded component is displayed, TSPAS_DDP asks:

Is this information correct? (Y/N):

Responding “Y” saves the equation component and returns the cursor to the coefficient field of the next component. “N” moves the cursor back to the current equation component for editing.

As part of component processing, TSPAS_DDP checks for the following: variables not on the master list, more than three species-specific variables active within the model, mismatched parentheses, two variables not separated by an operator, parentheses and variables not separated by an operator, and two operators not separated by a variable. If one or more of these conditions are found, an error message is written at the bottom of the screen. These errors must be addressed before an equation component is saved to the default database.

There are several features unique to this screen. First, the up and down arrow keys scroll through the equation components when the cursor is in the field **COEFFICIENT**. Second, selecting **HELP** in any field displays all the components in the current TE model at once. **HELP** also provides a convenient way to access components. Simply specify the number of the component to access and TSPAS_DDP returns from **HELP** displaying the selected component. Third, equation components can be removed from the model using **DELETE COMPONENT**. This function lists all the equation components on the screen and asks which component to delete. Fourth, unlike other screens, **CANCEL/EXIT** and **QUICK-OFF** are the *only* ways to exit this screen. (**EXECUTE** is not available because information is saved as components are processed.) Finally, after leaving the Regression Variable Information screen, TSPAS_DDP displays an intermediate screen (Exhibit 23) that requires a **NEWLINE** (or **RETURN**) before accessing the Existing Stand Appraisal menu. Processing will not continue until **NEWLINE** is selected.

Species-Specific Defaults—Choosing Species-Specific Defaults accesses the two-box screen shown in Exhibit 24. A species-specific (Type 1) variable is specified in the top box. **INDEX** here lists only the species-specific variables present in the currently active TE equation. **REMAINDER** lists the species-specific variables in the equation still requiring defaults. The list of species-specific variables in the TE equation is updated as equation components are added, modified, or deleted. Therefore, removing a species-specific variable from the TE equation also deletes the species-specific default values for this variable, as they are no longer needed. Species default values for the specified variable are entered in the lower box. All the species defined in the Timber Species Codes screen (Lists & Categories menu) are listed and require default values. In TSPAS_SP, these values appear as defaults for species selected on the current and future entry appraisal screens.

Cost and Bid Adjustments—The Cost and Bid Adjustments screen (Exhibit 25) collects information to: (1) calculate “predicted high bid” from the TE equation’s dependent variable; and (2) calculate the “indicated

Exhibit 23

```
-- Press RETURN to return to SQL*Forms --
```

Exhibit 24

SPECIES-SPECIFIC DEFAULTS

SPECIES-SPECIFIC VARIABLE CODE: SPLT

Enter species-specific variable code (Variable Type 1)

SPECIES	Values for: SPLT	in \$/MBF
-----	-----	-----
C		429
GF		301
AF		297
L		341
S		372
LPP		333
WP		535

Enter default values for all species listed

Enter default values for all species listed

Exhibit 25

COST AND BID ADJUSTMENTS

Base Year: 1994

Cost adjustments for calculating "Predicted High Bid"
from predicted GROSS VALUE

DESCRIPTION -----	AMOUNT SUBTRACTED -----
	(\$ per MBF)
ENVIRON PROTECT	5.00
ROAD MAINTENANCE	10.00
TEMP DEVELOPMENT	1.00

Enter up to 5 cost adjustment descriptions and amounts

Enter information for calculating Indicated Advertised Rate where:

Indicated Advertised Rate = -30.00 + [1 * (Predct High Bid)]

advertised rate" from the "predicted high bid." As mentioned earlier, the TE equation's dependent variable need not be "predicted high bid." But, if it is not, "predicted high bid" must be calculated by subtracting the cost adjustments entered in the top box from the equation's dependent variable. For each cost adjustment, enter a **DESCRIPTION FOR COST**. In TSPAS_SP, this description is displayed on the current and future entry appraisal screens. Next, under **AMOUNT SUBTRACTED** enter the default amount for the cost adjustment. Up to five adjustments can be entered.

The information entered in the lower box calculates "indicated advertised rate" from "predicted high bid." The difference between these two is known as the "statistical adjustment factor" or the "back-off factor." Two types of adjustments can be made. First, a constant can be added to, or subtracted from, "predicted high bid" (default is 0.0). If for example, \$25 were to be subtracted from "predicted high bid," enter -25 in the first field. Second, "indicated advertised rate" can be a proportion of "predicted high bid" (default is 1.0). For example, if "indicated advertised rate" was 75 percent of "predicted high bid," enter 0.75 in the second field. If no adjustment is needed, accept the default values.

Save Equation—The TIM selects Save Equation after specifying all model information. Saving an equation protects the model from further modification thus preserving data integrity, permits model information to be exported to other DG installations, and allows TSPAS_SP sales to access the model. When **Save Equation** is chosen, TSPAS_DDP first verifies that all pertinent information has been supplied. If no errors are encountered, a message is written to the screen indicating the equation was successfully saved. Once saved, an equation cannot be modified until it is "unsaved." However, the "unsave" option is available only when the equation is not being used in a TSPAS_SP sale.

Adjusting-Averages TE Information (Existing Stand)

Data collection screens are accessed by selecting **Existing Stand Appraisal** on the Main Menu. After selection, TSPAS_DDP next requests the TE adjustment set name:

Enter TE adjustment set name:

When a new name is specified, the following appears:

TE adjustment set name does not exist. Create a new set? (Y/N):

Answering "Y" accesses the TE General Information screen, while "N" returns the cursor to the model name. If the model specified has been previously entered, but not yet saved, TSPAS_DDP displays the Existing Stand Appraisal menu. Saving a model indicates that all information has been provided and the model is ready for use in TSPAS_SP. When a saved model is specified, TSPAS_DDP searches the TSPAS_SP database for any sale using the model. If a sale is found, TSPAS_DDP denies access to the model. In this case, the model information can only be accessed by either copying the model to a new name or deleting every sale using the model in TSPAS_SP. If no sales use the model specified, TSPAS_DDP asks:

Existing stand model has been saved. Unsave the model? (Y/N):

Answering "Y" accesses the Existing Stand Appraisal menu, while "N" places the cursor back to the model name. Note, there are two reserved model names: "REGEN STD" and "IMPORT."

The Existing Stand Appraisal menu for Adjusting-Averages TE is shown in Exhibit 26. The screens accessed from this menu are described below.

TE General Information—The TE General Information screen (Exhibit 27) is accessed when a new TE adjustment set name is specified, and secondly, when the first option on the Existing Stand Appraisal menu is chosen. The **Effective date** helps identify the adjustment sets. We suggest entering the date the adjustment set was entered in the default database. The **Base year** identifies the year for which the adjustment set estimates value. For example, if the base year is 1996, the value estimate is in 1996 dollars. The next two items describe the **Dependent adjustor**. **Description** labels the value estimated by the TE adjustment set and is

Exhibit 26

EXISTING STAND APPRAISAL

1. TE General Information
2. Adjustor Codes and Type -- Master List
3. Adjustment Set Information
4. Species-Specific Defaults
5. Cost and Bid Adjustments
6. Save Adjustment Set
7. Return to Main Menu

Enter Choice: 1

Exhibit 27

TE GENERAL INFORMATION

TE adjustment set name: AA DEMO

Effective date -- Month: 1
Year: 1994

Base year: 1994

Dependent adjustor --

1. Description: HIGH BID
2. Timber product: SAWTIMBER Units: MBF

Enter TE adjustment information as appropriate

displayed on the TSPAS_SP appraisal screen. Although the appraisal process ultimately calculates “predicted high bid,” the value predicted by the adjustment set need not be “predicted high bid.” A series of cost and bid adjustments (Cost and Bid Adjustments screen, Existing Stand Appraisal menu) may be used to convert this value to “predicted high bid.” Next enter the **Timber product** for which the TE adjustment set estimates value. This must be one of the timber products defined on the Timber Product Codes screen (Lists & Categories menu).

Adjustor Codes and Type—Master List—The Adjustor Codes and Type screen (Exhibit 28) creates a master list of adjustors available for any TE adjustment set, in any default database. Adjusting-averages models are restricted to using only adjustors defined on this list. The first two adjustors listed, TOTVOL and TOTAC, are “system” adjustors. When these adjustors are used in a model, TSPAS_SP automatically calculates their value as cutting unit appraisal information is provided. **CODE** identifies the adjustors, both in TSPAS_DDP and TSPAS_SP. Adjustor codes must begin with alphabetical characters and cannot contain embedded spaces or mathematical characters (*, /, +, -). Additionally, “LN” and “LOG” are unavailable for adjustor codes. **Units** specify the adjustor’s unit of measure and are used for descriptive purposes only. Each adjustor is categorized by Type. In TSPAS_SP, TE data is entered for each cutting unit. These cutting unit data are accumulated to compute the sale-level appraisal value. How the data are accumulated depends on the Type of each adjustor. The four types are described below:

Type	Description
1	Species-Specific. The amounts for these adjustors are entered on a species-specific basis. In TSPAS_SP, a weighted average across species (weights based on species volumes) is used in the adjustment set. Selling price, by species, for the final product provides an example.

Exhibit 28

ADJUSTOR CODES AND TYPE -- MASTER LIST

CODE	UNITS	TYPE	DESCRIPTION
TOTVOL	MBF	2	Total sale volume. NOTE: units for SAWTIMBER
TOTAC	Acres	2	Total sale acres
SPLT	\$/MBF	1	SELLING PRICE FOR LUMBER (LUMBER TALLY)
%DFT	%	3	PERCENT Defect
ADBH_SP	INCHS	1	SPECIES-SPECIFIC VARIABLE FOR DIAMETER
ADBH	INCHS	4	AVERAGE DIAMETER AT BREAST HEIGHT
UPHAUL	MILES	4	UNPAVED MILES
%SKY	%	4	PERCENT OF VOLUME SKYLINE YARDED
BURNACRES	ACRES	2	NUMBER OF SPECIAL BURN ACRES IN SALE
SPECRD	MILES	3	MILES OF SPECIFIED ROAD
VOL_PER_AC	MBF	4	VOLUME PER ACRE
WWPA	INDEX	1	WWPA INDEX BY SPECIES
TOT_HT	FEET	4	TOTAL HEIGHT

Enter codes, units, adjustor type, and optional description for all adjustors used singly or in combination in the TE adjustment set

- 2 Cutting Units Summed. For this adjustor type, TSPAS_SP sums the amounts entered for the cutting units to calculate the amount used for the sale alternative. The "system" adjustors, TOTVOL and TOTAC, are examples of Type 2 adjustors.
- 3 Cutting Unit = Sale. Here, TSPAS_SP stores one value for all cutting units in a sale alternative. (That is, if the value is changed in one cutting unit, it is changed for all the rest.) The value used for the sale alternative adjustor, then, is the one value stored for all cutting units. Type 3 adjustors measure sale aspects which cannot be directly associated with a cutting unit, for instance, sale-wide bidding method.
- 4 Weighted Average. To calculate the sale alternative value, TSPAS_SP takes a weighted average of the values entered for the cutting units. The weights are based on the total harvest volumes for each cutting unit. Average diameter, and average harvest volume per acre are examples of Type 4 adjustors. Any adjustor not fitting Types 1, 2, or 3 should be assigned to this type.

Adjustment Set Information—Exhibit 29, Panel A displays the screen where a TE adjustment set is entered. The screen contains two data entry fields: **ADJUSTMENT** (for the adjustment amount), and the **ADJUSTMENT SET COMPONENT**. Because of screen limitations, TSPAS_DDP collects information for only one adjustment set component at a time.

The adjustment set **Average** (or overall sale mean) is collected first. The adjustment set components are entered next. The simplest and, perhaps, most common adjustment set component contains a single adjustor. For this case, the adjustment set component contains the adjustor minus the average value for the adjustor computed from past sales. For example, suppose the adjustor is "DBH" (Diameter at Breast Height) and the average for past sales is 13.7, enter the following: DBH - 13.7.

Exhibit 29

Panel 29-A

ADJUSTMENT SET INFORMATION

```

ADJUSTMENT                ADJUSTMENT SET COMPONENT
-----
      200.000  Average
1      -1.000  HAUL_COST - 32.00
                                     _____
                                     _____
                                     _____

+-----+
| Enter adjustment and mathematical description for |
| each composite adjustor in the TE adjustment set |
+-----+

Select HELP (S-F1) to list all components;DELETE (S-F9) to delete a component
Select UP and DOWN arrows to move through the adjustment list

```

Panel 29-B

ADJUSTMENT SET INFORMATION

```
+-----+-----+
ADJUSTMENT                ADJUSTMENT SET COMPONENT
-----+-----+
      200.000 Average
1   -1.000 HAUL_COST - 32.00 _____
                                     _____
                                     +-----+
|               PROCESSED ADJUSTING AVERAGE COMPONENT: |
| (HAUL_COST - 32.000) _____                     |
|_____                                                 |
|_____                                                 |
|_____                                                 |
|_____                                                 |
|_____                                                 |
|_____                                                 |
|               Is this information correct (Y/N)? Y    |
+-----+-----+
+-----+-----+=====+-----+
Select HELP (S-F1) to list all components;DELETE (S-F9) to delete a component
```

TSPAS_DDP can handle more complex adjustment set components as well. In fact, an adjustment set component can be any mathematical relationship involving the master list adjustors and the following operators:

Operator	Description
+	Add
-	Subtract or negative value
*	Multiply
/	Divide
**	Exponent
ln	Natural log
log	Log base 10

There must be an operator between any two adjustors, and between an adjustor that either precedes or follows terms enclosed in parentheses. Additionally, at least one blank space must follow the operators "ln" and "log." Enter the adjustment set component expression minus the average value for the component computed from past sales. This average must be the average value of the adjustment set component itself. That is, the component must be calculated for each of the past sales and the result averaged. For example, suppose the adjustment set component is the natural log of TOTVOL, ln TOTVOL. The average for this expression requires taking the natural log of TOTVOL for each past sale, and then averaging the result. Suppose this average is 1.47. The adjustment set component would be entered as follows: ln TOTVOL - 1.47. Do *not* calculate the average value for each adjustor separately, and substitute into the adjustment set component expression to calculate the average. Using the above example, this would be averaging TOTVOL over all the past sales and then taking the natural log of that average. This will *not* result in the same value as above.

After an adjustment set component has been entered, TSPAS_DDP "reads" the component as a mathematical expression. This process is initiated by pressing NEWLINE on either a blank component line, or on the last component line. If no errors are detected, the expanded component is written in a window at the bottom of the screen (Exhibit 29, Panel B). The component expansion illustrates how the relationship will be mathematically processed. [Note: $VAR1 + VAR2 * VAR3$ which would be "read" as $VAR1 + (VAR2 * VAR3)$ does not generally produce the same results as $(VAR1 + VAR2) * VAR3$.] After the expanded component is displayed TSPAS_DDP asks:

Is this information correct? (Y/N):

Responding "Y" saves the adjustment set component and returns the cursor to the adjustment field of the next component. "N" moves the cursor back to the current adjustment set component for editing.

As part of component processing, TSPAS_DDP checks for the following: adjustors not on the master list, more than three species-specific adjustors active within the model, mismatched parentheses, two adjustors not separated by an operator, parentheses and adjustors not separated by an operator, and two operators not separated by an adjustor. If one or more of these conditions are found, an error message is written at the bottom of the screen. These errors must be addressed before an adjustment set component is saved to the default database.

There are several features unique to this screen. First, the up and down arrow keys scroll through the adjustment set components when the cursor is in the **ADJUSTMENT** field. Second, selecting **HELP** in any field displays all the components in the current TE model at once. **HELP** also provides a convenient way to access components. Simply specify the number of the component to access and TSPAS_DDP returns from **HELP** displaying the selected component. Third, adjustment set components can be removed from the model using **DELETE COMPONENT**. This function lists all the adjustment set components on the screen and asks which component to delete. Fourth, unlike other screens, **CANCEL/EXIT** and **QUICK-OFF** are the *only* ways to exit this screen. (**EXECUTE** is not available because information is saved as components are processed.) Finally, after leaving the Adjustment Set Information screen, TSPAS_DDP displays an intermediate screen (Exhibit 23) and requires a **NEWLINE** (or **RETURN**) before accessing the Existing Stand Appraisal menu. Processing will not continue until **NEWLINE** is selected.

Species-Specific Defaults—Choosing Species-Specific Defaults accesses the two-box screen shown in Exhibit 30. A species-specific (Type 1) adjustor is specified in the top box. **INDEX** here lists only the species-specific adjustors present in the currently active TE adjustment set. **REMAINDER** lists the species-specific adjustors in the adjustment set still requiring defaults. Finally, the list of species-specific adjustors in the TE model is updated as adjustment set components are added, modified, or deleted. Therefore, removing a species-specific adjustor from the TE adjustment set also deletes the species-specific default values for this adjustor, as they are no longer needed. Species default values for the specified adjustor are entered in the lower box. All the species defined in the Timber Species Codes screen (Lists & Categories menu) are listed and must

Exhibit 30

SPECIES-SPECIFIC DEFAULTS

SPECIES-SPECIFIC ADJUSTOR CODE: STMP_PRICE

Enter species-specific adjustor code (Adjustor Type 1)

SPECIES	Values for: STMP_PRICE in \$
-----	-----
C	230
GF	80
AF	80
L	120
S	89
LPP	120
WP	250

Enter default values for all species listed

have default values. In TSPAS_SP, these values appear as defaults for species selected on the current and future entry appraisal screens.

Cost and Bid Adjustments—The Cost and Bid Adjustments screen (Exhibit 31) collects information to: (1) calculate “predicted high bid” from the TE model’s dependent adjustor; and (2) calculate the “indicated advertised rate” from the “predicted high bid.” As mentioned earlier, the TE adjustment set’s dependent adjustor need not be “predicted high bid.” But if it is not, “predicted high bid” must be calculated by subtracting the cost adjustments entered in the top box from the model’s dependent adjustor. For each cost adjustment, enter a **DESCRIPTION FOR COST**. In TSPAS_SP, this description is displayed on the current and future entry appraisal screens. Next, under **AMOUNT SUBTRACTED** enter the default amount for the cost adjustment. Up to five adjustments can be entered.

The information entered in the lower box calculates “indicated advertised rate” from “predicted high bid.” The difference between these two is known as the “statistical adjustment factor” or the “back-off factor.” Two types of adjustments can be made. First, a constant can be added to, or subtracted from, “predicted high bid” (default is 0.0). For example, if \$25 were to be subtracted from “predicted high bid,” enter -25 in the first field. Second, “indicated advertised rate” can be a proportion of “predicted high bid” (default is 1.0). For example, if “indicated advertised rate” was 75 percent of “predicted high bid,” enter 0.75 in the second field. If no adjustment is needed, accept both default values.

Save Adjustment Set—The TIM selects **Save Adjustment Set** after specifying all model information. Saving the adjustment set protects the model from further modification thus preserving data integrity, permits

Exhibit 31

COST AND BID ADJUSTMENTS

Base Year: 1994

Cost adjustments for calculating "Predicted High Bid"
from predicted HIGH BID

DESCRIPTION -----	AMOUNT SUBTRACTED -----
	(\$ per MBF)
NO ADJUSTMENT	0.00

Enter up to 5 cost adjustment descriptions and amounts

Enter information for calculating Indicated Advertised Rate where:

Indicated Advertised Rate = -30.00 + [1 * (Predct High Bid)]

model information to be exported to other DG installations, and allows TSPAS_SP sales to access the model. When **Save Adjustment Set** is chosen, TSPAS_DDP first verifies that all pertinent information has been supplied. If no errors are encountered, a message is written to the screen indicating the adjustment set was successfully saved. Once saved, the adjustment set cannot be modified until it is “unsaved.” However, the “unsave” option is available only when the model is not being used in a TSPAS_SP sale.

TE Appraisal Information for the Regenerated Stand

Both TE appraisal approaches, equation-based and adjusting-averages, are available for valuing regenerated stand harvests. The choice of approach is made on the General Information screen accessed from the Main Menu. The screens for entering TE information for the regenerated stand are accessed by selecting **Regenerated Stand Appraisal** on the Main Menu. In the following appraisal discussions, consult only the appropriate section; Equation-Based TE Information or Adjusting-Averages TE Information.

Equation-Based TE Information (Regenerated Stand)

The Regenerated Stand Appraisal menu for equation-based TE is shown in Exhibit 32. This menu differs in three respects from the current stand menu. First, only one TE equation can be stored for the regenerated stand, and therefore, there is no request for an equation name. Second, at least one default value set must be defined for any regenerated stand equation (even those containing just the intercept). Third, default values are required for all the variables present in the regenerated stand TE equation.

TE General Information—The TE General Information screen (Exhibit 33) is accessed when the Regenerated Stand Appraisal (Main Menu) is selected the first time, and secondly, when the first option on the Regenerated Stand Appraisal menu is chosen. The **Base year** identifies the year for which the equation estimates value. For example, if the base year

Exhibit 32

REGENERATED STAND APPRAISAL

1. TE General Information
2. Adjustor Codes and Type -- Master List
3. Adjustment Set Information
4. Species-Specific Defaults
5. Default Value Set Definitions
6. Default Values
7. Cost and Bid Adjustments
8. Save Adjustment Set
9. Delete Adjustment Set
10. Return to Main Menu

Enter choice: 1

Exhibit 33

TE GENERAL INFORMATION (REGENERATED STAND)

Base year: 1994

Dependent variable (predicted y) --

1. Description: GROSS VALUE
2. Timber product: SAWTIMBER Units: MBF

Enter TE equation information as appropriate

is 1996, the value prediction is in 1996 dollars. The next two fields describe the **Dependent variable (predicted y)**. **Description** labels the value estimated by the TE equation and is displayed on the TSPAS_SP regenerated stand appraisal screen. Although the appraisal process ultimately calculates "predicted high bid," the dependent variable need not be "predicted high bid." A series of cost and bid adjustments (Cost and Bid Adjustments screen, Regenerated Stand Appraisal menu) may be used to convert the dependent variable to "predicted high bid." Next enter the **Timber product** for which the TE equation estimates value. This must be one of the timber products defined on the Timber Product Codes screen (Lists & Categories menu).

Variable Codes and Type—Master List—This screen operates the same as the Variable Codes and Type—Master List screen accessed from the Existing Stand Appraisal menu for equation-based TE.

Regression Variable Information—This screen operates the same as the Regression Variable Information screen accessed from the Existing Stand Appraisal menu for equation-based TE.

Species-Specific Defaults—This screen operates the same as the Species-Specific Defaults screen accessed from the Existing Stand Appraisal menu for equation-based TE.

Default Value Set Definitions—In TSPAS_SP, the regenerated stand appraisal information is automatically generated once a prescription is specified. That is, after specifying a regenerated stand cutting unit prescription, TSPAS_SP, using only the default database information, calculates the appraised value for the cutting unit. To accomplish this, TSPAS_DDP must collect the default values for the variables found in the regenerated stand equation. TSPAS_DDP allows up to 5 sets of default values, each representing a unique appraisal scenario. The Default Value Set Definitions screen (Exhibit 34) requests a **NAME** for each set of defaults used. The names specified here appear on the Default Values screen (Exhibit 35), described below. Also, one of these default value sets is specified for each harvest entry defined in the Regenerated Stand Prescription screen (Main Menu). A harvest entry prescription is not valid

Exhibit 34

DEFAULT VALUE SET DEFINITIONS (REGENERATED STAND)

	NAME	DESCRIPTION
1.	SMALL	STAND HAS SMALL AVERAGE DIAMETER
2.	MEDIUM	STAND HAS MEDIUM AVERAGE DIAMETER
3.	LARGE	STAND HAS LARGE AVERAGE DIAMETER
4.		
5.		

Enter up to 5 default value set names and optional descriptions

Exhibit 35

DEFAULT VALUES (REGENERATED STAND)

ADJUSTOR	----- DEFAULT VALUE SET NAMES -----		
	SMALL	MEDIUM	LARGE
ADBH	9	14	20

Enter default values for each adjustor listed

until a default value set is chosen. Therefore, defining at least one default value set is mandatory—even when the regenerated stand equation only contains the intercept.

Default Values—The Default Values screen (Exhibit 35) collects the default values for the TE variable Types 2, 3, and 4 present in the regenerated stand equation. (Default values for variable Type 1 are collected in the Species-Specific Defaults screen.) Default values are collected for each of the sets specified in the Default Value Set Definitions screen, described above. Values must be provided for each default value set, for each variable listed on this screen.

Cost and Bid Adjustments—This screen operates the same as the Cost and Bid Adjustments screen accessed from the Existing Stand Appraisal menu for equation-based TE.

Save Equation—The TIM selects **Save Equation** after specifying all model information. Saving an equation protects the model from further modification, thus preserving data integrity. TSPAS_DDP requires saving the regenerated stand equation before locking a default database. Default databases must be locked before TSPAS_SP can access them, or before they can be exported to other DG installations. When **Save Equation** is chosen, TSPAS_DDP first verifies that all pertinent data have been supplied. If no errors are encountered, a message is written to the screen indicating the equation was successfully saved. Once saved, an equation cannot be modified until it is “unsaved.” However, the “unsave” option is available only when the default database is not being used in a TSPAS_SP sale.

Delete Equation—Selecting **Delete Equation** removes all the TE information entered for the regenerated stand model from the database. This procedure may be useful after copying one default database to another.

Adjusting-Averages TE Information (Regenerated Stand)

The Regenerated Stand Appraisal menu for adjusting-averages TE is shown in Exhibit 36. This menu differs in three respects from the current stand menu. First, only one TE adjustment set can be stored for the regenerated stand, and therefore, there is no request for a model name. Second, at least one default value set must be defined for any regenerated stand model (even those containing just the overall sale mean). Third, default values are required for all the adjustors present in the regenerated stand TE model.

TE General Information—The TE General Information screen (Exhibit 37) is accessed when the Regenerated Stand Appraisal (Main Menu) is selected for the first time, and secondly, when the first option on the Regenerated Stand Appraisal menu is chosen. The **Base year** identifies the

Exhibit 36

REGENERATED STAND APPRAISAL

1. TE General Information
2. Variable Codes and Type -- Master List
3. Regression Variable Information
4. Species-Specific Defaults
5. Default Value Set Definitions
6. Default Values
7. Cost and Bid Adjustments
8. Save Equation
9. Delete Equation
10. Return to Main Menu

Enter choice: 1

Exhibit 37

TE GENERAL INFORMATION (REGENERATED STAND)

Base year: 1994

Dependent adjustor --

1. Description: GROSS VALUE

2. Timber product: SAWTIMBER Units: MBF

Enter TE adjustment set information as appropriate

year for which the TE adjustment set estimates value. For example, if the base year is 1996, the value prediction is in 1996 dollars. The next two fields describe the **Dependent adjustor**. **Description** labels the value estimated by the TE adjustment set and is displayed on the TSPAS_SP regenerated stand appraisal screen. Although the appraisal process ultimately calculates “predicted high bid,” the dependent adjustor need not be “predicted high bid.” A series of cost and bid adjustments (Cost and Bid Adjustments screen, Regenerated Stand Appraisal menu) may be used to convert the dependent adjustor to “predicted high bid.” Next, enter the **Timber product** for which the TE adjustment set estimates value. This must be one of the timber products defined on the Timber Product Codes screen (Lists & Categories menu).

Adjustor Codes and Type—Master List—This screen operates the same as the Adjustor Codes and Type—Master List screen accessed from the Existing Stand Appraisal menu for adjusting-averages TE.

Adjustment Set Information—This screen operates the same as the Adjustment Set Information screen accessed from the Existing Stand Appraisal menu for adjusting-averages TE.

Species-Specific Defaults—This screen operates the same as the Species-Specific Defaults screen accessed from the Existing Stand Appraisal menu for adjusting-averages TE.

Default Value Set Definitions—In TSPAS_SP, the regenerated stand appraisal information is automatically generated once a prescription is specified. That is, after specifying a regenerated stand cutting unit prescription, TSPAS_SP, using only the default database information, calculates the appraised value for the cutting unit. To accomplish this, TSPAS_DDP must collect the default values for the adjustors found in the regenerated stand model. TSPAS_DDP allows up to 5 sets of default values, each representing a unique appraisal scenario. The Default Value Set Definitions screen (Exhibit 38) requests a NAME for each set of defaults used. The names specified here appear on the Default Values screen (Exhibit 39), described on next page. Also, one of these default value sets is specified for each harvest entry defined in the Regenerated Stand Prescription screen (Main Menu). A harvest entry prescription is not valid until a

Exhibit 38

DEFAULT VALUE SET DEFINITIONS (REGENERATED STAND)

	NAME	DESCRIPTION
1.	SMALL	STAND HAS SMALL AVERAGE DIAMETER
2.	MEDIUM	STAND HAS MEDIUM AVERAGE DIAMETER
3.	LARGE	STAND HAS LARGE AVERAGE DIAMETER
4.		
5.		

Enter up to 5 default value set names and optional descriptions

Exhibit 39

DEFAULT VALUES (REGENERATED STAND)

VARIABLE	DEFAULT VALUE SET NAMES		
	SMALL	MEDIUM	LARGE
ADBH	9	14	20

Enter default values for each variable listed

default value set is chosen. Therefore, defining at least one default value set is mandatory—even when the regenerated stand equation only contains the overall sale mean (average).

Default Values—The Default Values screen (Exhibit 39) collects the default values for the TE adjustor Types 2, 3, and 4 present in the regenerated stand TE model. (Default values for adjustor Type 1 are collected in the Species-Specific Defaults screen.) Default values are collected for each of the sets specified in the Default Value Set Definitions screen, described above. Values must be provided for each default value set, for each adjustor listed on this screen.

Cost and Bid Adjustments—This screen operates the same as the Cost and Bid Adjustments screen accessed from the Existing Stand Appraisal menu for adjusting-averages TE.

Save Adjustment Set—The TIM selects **Save Adjustment Set** after specifying all model information. Saving the adjustment set protects the model from further modification—thus preserving data integrity. TSPAS_DDP requires saving the regenerated stand TE model before locking a default database. Default databases must be locked before TSPAS_SP can access them, or before they can be exported to other DG installations. When **Save Adjustment Set** is chosen, TSPAS_DDP first verifies that all the pertinent data have been supplied. If no errors are encountered, a message is written to the screen indicating the adjustment set was successfully saved. Once saved, an adjustment set cannot be modified until it is “unsaved.” However, the “unsave” option is available only when the default database is not being used in a TSPAS_SP sale.

Delete Adjustment Set—Selecting **Delete Adjustment Set** removes all the TE information entered for the regenerated stand model from the database. This may be useful after copying one default database to another.

Regenerated Stand Prescriptions

In TSPAS_SP, the regenerated stand appraisal information is automatically generated once a regenerated stand prescription is specified. That is, after specifying a regenerated stand cutting unit prescription, TSPAS_SP uses the default database information to calculate the appraised value for that cutting unit. The default values used in these TSPAS_SP calculations are specified in the Regenerated Stand Prescriptions screen (Exhibit 40), accessed from the Main Menu. The prescriptions built in this two-box screen contain information for which species will be harvested, timing and amount, as well as the site preparation and regeneration methods, and the logging method (if RV) or the TE model default value set (if TE).

Exhibit 40

REGENERATED STAND PRESCRIPTIONS (TE APPRAISAL)

----- TIMBER STRATA -----									
1	2	3	4	Timber Product: SAWTIMBER					
FOR TYPE	PROD CLASS			Units: MBF					
DF	MED								
Specify combinations of strata field codes forming valid timber strata									
MGT	C	V	S	R	DECADAL	----- VOLUME BY TIMBER SPECIES -----			
INT	S	A	T	E	STAND	1	2	3	4
	T	L	E	G	AGE	DF	PP	LPP	
---	-	-	-	-	-----	-----	-----	-----	-----
H	A				2	0	0	0	0
H		A	H	F	7	3.4	.2	.6	0
H		B	G	F	9	3.4	.3	.5	0
H		C	B	B	11	9.8	1.2	1.2	0

Enter species codes for specified timber strata

Specify a previously defined timber strata definition in the top box. **INDEX** lists timber strata definitions, and **REMAINDER** lists strata definitions still requiring prescription and yield information. The lower box collects information pertaining to the strata definition specified in the top box. First, complete the column labels in the lower box with up to five timber species yielding harvest volumes. **PAGE DOWN** (C4) saves the species information to the database and moves the cursor to the main body of the lower box. Here, prescriptions are built for each management intensity option that applies to the timber strata definition listed in the top box. A management intensity prescription is comprised of one or more treatments. Treatments include stand management activities (such as pre-commercial thinning) and harvest entries. Each row in the lower box identifies one treatment applied in the management intensity prescription listed on that row. Use as many rows as necessary (repeating the management intensity code) to enter all the treatments present in a management intensity prescription.

The information box at the bottom of the screen, provides information about each of the fields as they are accessed. **MGT INT** is the field for entering the management intensity option. These are selected from the options defined on the Management Intensity Descriptions screen (Lists & Categories menu). **INDEX** lists the detailed description for each management intensity option. **COST** is the field for specifying nonharvest treatments. These are selected from the treatments specified on the Stand Management Costs screen (Costs menu). If a nonharvest treatment is selected, decade is the only other field accessible in this row. (Only one treatment can be defined per line, and the remainder of the line collects information for harvest entry treatments.) To specify a harvest entry treatment press **NEWLINE** on a blank **COST** field. This accesses the next field which is labelled either **VAL** or **LOG**, depending on the regenerated stand appraisal method selected on the General Information screen (Main Menu). When **TE** appraisal is selected for the regenerated stand, **VAL** collects a default value set for the regenerated stand **TE** model. Default value sets are defined on the Default Value Set Definition screen (Regenerated Stand Appraisal menu). When **RV** appraisal is selected for the regenerated stand, **LOG** collects a logging cost category defined on the Logging Cost Categories screen (Lists & Categories menu). **SITE** specifies a site preparation cost category defined on the Site Preparation Costs screen (Costs menu). **REG** specifies a regeneration cost category defined on the Regeneration Costs screen (Costs menu). **DECADAL STAND AGE** is the age, in decades, for applying the treatment specified in this row. Finally, the five fields under **VOLUME BY TIMBER SPECIES** collect the harvest volume data. Enter these volumes on a per-acre basis.

Nontimber Output Schedules

Selecting **Nontimber Output Schedules** from the Main Menu (Exhibit 41) accesses the screen for entering nontimber output quantities over time for the regenerated stands. Output schedules are specified for each management intensity option of each timber strata definition entered on the Regenerated Stand Prescription screen (Main Menu). In the top box, select one of the nontimber outputs defined previously in the Nontimber Outputs Definitions screen (Lists & Categories menu). Next, select a previously-defined combination of timber strata and management

Exhibit 41

NONTIMBER OUTPUT SCHEDULES

NONTIMBER OUTPUT: H2O YIELD		Units: AC-FEET		
TIMBER STRATA:	1 FOR TYPE DF	2 PROD CLASS MED	3	4 MANAGEMENT INTENSITY M
Specify nontimber output & combinations of strata fields for timber strata				

Annual per-acre output of H2O YIELD for unharvested, existing stand: 1.14	DECADAL STAND AGE ----- 1 2 3 4 5	Annual per-acre output of H2O YIELD for regenerated stand ----- 1.53 1.41 1.33 1.29 1.25
Enter per-acre output for strata and management intensity specified		

intensity. Enter these codes directly, or select INDEX for a complete list of strata-intensity combinations, or select REMAINDER for a list of strata-intensity combinations still requiring a nontimber output schedule.

The lower box collects the associated nontimber yield schedule. TSPAS_SP treats nontimber outputs from a “with and without” stand-point. That is, TSPAS_SP calculates the difference between the nontimber output “with” the timber sale and “without” the sale. The default value for “without” is entered in the field labeled **Annual per-acre output of XXXXXXXXXXXX for unharvested, existing stand** (where XXXXXXXXXXXX is the nontimber output from the top box). The remainder of the lower box collects the default data for the “with” situation. Under **DECADAL STAND AGE** enter the age of the regenerated stand in whole decades, and in the right column, enter the average, annual quantity for that decade. Continue by entering output decades and quantities through the end of the first rotation of the regenerated stand. Data for up to 30 decades may be entered.

Price and Cost Changes Menu

Exhibit 42 displays the menu accessed when selecting **Price and Cost Changes** from the Main Menu. The screens accessed from this menu specify the general inflation rate, and real price and cost changes. The inflation rate is the rise in the general level of prices. Real price and cost changes are the changes that occur above and beyond the inflation rate. Both the inflation rate and the real changes are used to adjust the default database costs and prices from base-year dollars to TSPAS_SP “analysis-year” dollars. All costs and prices displayed on TSPAS_SP screens are expressed in analysis-year dollars. The report calculations in TSPAS_SP apply the real rates of change from the analysis year to the year the cost or price occurs. For the regenerated stand, real changes are applied only

Exhibit 42

PRICE AND COST CHANGES

1. General Inflation Rate
2. Manufacturing Costs
3. Nontimber Output Values
4. Miscellaneous Costs and Prices
5. Timber Product Prices
6. Return to Main Menu

Enter Choice:

through the first rotation, and no real change is assumed from that point on. All price and cost change rates in TSPAS_DDP are entered as percents. For example, 4 percent would be entered as 4.00.

General Inflation Rate—The General Inflation Rate screen is shown in Exhibit 43, Panel A. In TSPAS_SP, these rates, along with the real rates of change, are applied to update default database prices and costs from base-year dollars to TSPAS_SP analysis-year dollars. Enter the expected average annual inflation rate for the decades specified on the screen.

Manufacturing Costs—The Manufacturing Costs screen (Exhibit 43, Panel B) collects the real rates of change for manufacturing costs. In TSPAS_SP these rates are used for future entries in the existing stand and regenerated stand for both RV and TE appraisal. In RV appraisal they are applied to the manufacturing costs entered directly, while in TE appraisal they are applied to imputed manufacturing costs used in the process of projecting future stumpage prices. See Appendix D, section “PNV for Current Stand and First Rotation, TE Appraisal” for the calculation details. Enter the average annual real rates for the decades specified, for each timber product defined on the Timber Product Codes screen (Lists & Categories menu).

Nontimber Output Values—The Nontimber Output Values screen (Exhibit 43, Panel C) gathers the real rates of change in value for nontimber outputs. Enter the average annual real rates for the decades specified, for each nontimber output defined on the Nontimber Output Codes screen (Lists & Categories menu).

Miscellaneous Costs and Prices—The Miscellaneous Costs and Prices screen is shown in Exhibit 43, Panel D. In TSPAS_SP, the rates for **Logging and Related Costs** are applied to all sale-related costs, except USFS costs. The rates for **USFS Costs** are applied to all USFS costs entered in TSPAS_SP screens (Future Entry Appraisal, Regenerated Stand Appraisal and Harvest Rates & Forest Service Costs). In TSPAS_SP, the **General Cost** rates are applied to nonharvest activities costs and to the manufacturing cost for any timber product not having these rates of change.

Timber Product Prices—Timber Product Prices (Exhibit 43, Panel E) is a two-box screen for entering real changes for the timber product prices.

Exhibit 43

Panel 43-A

GENERAL INFLATION RATES

	----- DECADES -----					
	1990	2000	2010	2020	2030	2040 +
	----- % Annual Change -----					
INFLATION RATE:	4.00	4.00	4.00	4.00	4.00	4.00

Enter annual inflation rate for specified decades

Panel 43-B

MANUFACTURING COSTS

	----- DECADES -----					
	1990	2000	2010	2020	2030	2040 +
	----- % Annual Change -----					
TIMBER PRODUCT						
SAWTIMBER	1.00	1.00	1.00	1.00	1.00	1.00
POST-POLE	.50	.50	.50	.50	.50	.50
PULPWOOD	2.00	2.00	2.00	2.00	2.00	2.00

Enter annual real rates of manufacturing cost change for specified decades

Panel 43-C

NONTIMBER OUTPUT VALUES

	----- DECADES -----					
	1990	2000	2010	2020	2030	2040 +
	----- % Annual Change -----					
NONTIMBER OUTPUT						
H2O YIELD	1.00	1.00	1.00	1.00	1.00	1.00

Enter annual real rates of nontimber value change for specified decades

CATEGORY	----- DECADE -----					
	1990	2000	2010	2020	2030	2040 +
	----- % Annual Change -----					
Logging & Related Costs	2.00	2.00	2.00	2.00	2.00	2.00
USFS Costs	.50	.50	.50	.50	.50	.50
General Cost	0.00	0.00	0.00	0.00	0.00	0.00

Enter annual real rates of change for specified decades

TIMBER PRODUCT: SAWTIMBER

Enter timber product code

TIMBER SPECIES	----- DECADES -----					
	1990	2000	2010	2020	2030	2040 +
	----- % Annual Change -----					
DF	1.50	1.50	1.50	1.50	1.50	1.50
HE	1.00	1.00	1.00	1.00	1.00	1.00
GF	1.00	1.00	1.00	1.00	1.00	1.00
C	2.00	2.00	2.00	2.00	2.00	2.00
AF	1.00	1.00	1.00	1.00	1.00	1.00
L	1.50	1.50	1.50	1.50	1.50	1.50
S	1.00	1.00	1.00	1.00	1.00	1.00
LPP	1.50	1.50	1.50	1.50	1.50	1.50

Enter annual real rates of timber product price change for specified timber species and decades, for each timber product

In the top box specify a previously defined timber product. Note, REMAINDER lists outputs still requiring rates of change information. The timber species column in the lower box is automatically filled with the species defined in the General Appraisal Information screen (Main Menu).

Verify and Lock Database

The **Verify and Lock Database** option (Main Menu) performs database cross-checking not done during data entry, and verifies that all mandatory data have been entered. TSPAS_DDP is able to catch many problems, but the ultimate responsibility for a complete default database falls on the TIM. Any errors or warnings encountered by the verify procedure are written to a file with the following naming convention:

XXXXXXXXXX.VERIFY

where **XXXXXXXXXX** represents the default database name. Note, embedded spaces in the default database name are converted to underscores,

“_,” in the file name. The verification file can be manipulated outside TSPAS_DDP as any other IS/CLI text file. When errors or warnings are detected, TSPAS_DDP displays the following message on the screen:

error(s) found in default database XXXXXXXXXXXX.

Errors written to file XXXXXXXXXXXX.VERIFY

Do you want to view XXXXXXXXXXXX.VERIFY? (Y/N):

where # represents the number of errors encountered and XXXXXXXXXXXX represents the default database name, with embedded blanks converted to underscores. Answering “N” returns TSPAS_DDP to the Main Menu through the “NEWLINE” screen (Exhibit 23) that requires a NEWLINE (RETURN) to continue.

Answering “Y” to the above question initiates DG View. View follows the DG’s CEO editor template, having the following functions available: PREVIOUS SCREEN (F3), NEXT SCREEN (F4), CANCEL/EXIT (F11), VIEW HELP (S-F1), GO TO line # (S-F5), FIND string (S-F6), REMOVE line numbers toggle (S-F15). Cursor keys can also be used to negotiate throughout the file. CANCEL/EXIT terminates View, closes the verify file, and returns processing back to TSPAS_DDP. However, before TSPAS_DDP displays the Main Menu, the “NEWLINE” screen (Exhibit 23) is reached requiring a NEWLINE (RETURN) to continue.

The errors and warnings generated by the verify procedure are explained in Appendix C, “Error Messages and Warnings.”

When no errors are encountered during database verification, the default database can be locked. Locking a default database protects the data integrity of the database, allows the database to be exported to other DG installations and permits TSPAS_SP sales to use the database in planning sales. Once a database is locked, TSPAS_DDP restricts access to the default data.

After verification, TSPAS_DDP asks:

0 error(s) found in default database XXXXXXXXXXXX.

Do you want to lock the database? (Y/N):

Answering “N” returns TSPAS_DDP back to the Main Menu (Exhibit 4), stopping first at the NEWLINE screen (Exhibit 23). When “Y” is entered, TSPAS_DDP marks the database “Locked” and returns to the Locked Database Main Menu, stopping first at the NEWLINE screen (Exhibit 23).

The Locked Database Main Menu is shown in Exhibit 44. Note, the second menu item, **Existing Stand Appraisal**, is absent from the menu when RV appraisal is selected for the existing stand.

Exhibit 44

LOCKED DATABASE MAIN MENU

1. Unlock Database
2. Existing Stand Appraisal
3. Utilities
4. End Session

Enter choice: 1

The first menu option, **Unlock Database**, removes the "Locked" status from a default database and allows full access to database information through Main Menu displayed in Exhibit 4. However, when a default database used in a TSPAS_SP sale is unlocked, TSPAS_DDP prohibits some modifications to preserve data consistency within the sale.

Existing Stand Appraisal, the second menu option, accesses the TE appraisal menus for the existing stand described in the TE Appraisal Information for the Existing Stand section in this manual. TE models can be built, modified, and saved while a default database remains locked. This permits updating the TE information while the main portion of the default database remains locked and intact.

The third option, **Utilities**, accesses the Utility menu discussed below. All utility functions are available when the default database is locked.

Utilities Menu

The **Utilities Menu** shown in Exhibit 45 is accessed by selecting Utilities from the Main Menu. TSPAS_DDP provides options for copying, deleting, and exporting a default database or TE appraisal information, switching to a different default database, printing a default database and specifying a printer.

Copy Utilities—Two copy options are available; copying an entire default database, and copying TE appraisal information. In the copy window, specify the default database name (database copy option) or the TE model name (TE model copy option) to be copied from, and the destination database or TE model name. Note, a TE model can only be copied within the same default database. Both equation-based and adjusting-averages models may be copied.

Delete Utilities—Two delete options are available; deleting an entire default database, and deleting TE appraisal information. In the delete window specify the default database name (database delete option) or the TE model name (TE model delete option). TSPAS_DDP will not delete any default database or TE model being used in a TSPAS_SP sale. Secondly, TSPAS_DDP only deletes unlocked default databases (database delete

Exhibit 45

UTILITIES

1. Copy a Default Database
2. Copy TE Appraisal Information
3. Delete a Default Database
4. Delete TE Appraisal Information
5. Switch to a Different Default Database
6. Print a Default Database
7. Change Printer Name
8. Export Default Database
9. Export TE Appraisal Information
10. Return to Main Menu

Enter choice: 1

option) and “unsaved” TE models (TE model delete option). Note, TE models can be “unsaved” only when they are not used in a TSPAS_SP sale. Both equation-based and adjusting-averages models may be deleted.

Switch to a Different Default Database—In TSPAS_DDP only one default database is active at any one time. **Switch to a Different Default Database** deactivates the current database, and activates another default database without leaving the program. After choosing this option, TSPAS_DDP asks for a database name. If an existing default database name is supplied, the switch is made and a message appears on the screen confirming the switch. If the default database name does not exist, TSPAS_DDP asks if this is a new database. Processing continues as described in the Executing TSPAS_DDP section.

Print a Default Database—Printing a default database produces a paper copy of the data included in the default database, which almost duplicates the Default Categories and Lists report generated by TSPAS_SP. The report obtained here is sent to the default printer. If no default printer has been specified, TSPAS_DDP requests the printer information described in the next section.

Change Printer Name—This menu item accesses a window for specifying a default printer accessible from IS/CLI. (Some DG installations have printer names accessible to CEO which are not recognized by IS/CLI. These printer names will not work in TSPAS_DDP.) After printer name is entered, TSPAS_DDP asks:

Is XXXXXX a laser/printer? (Y/N) _

where XXXXXX represents the printer name. If answered “Y” (for a laser printer) the next question requests the type of laser:

D=DG laser/emulator, H=HP laser/emulator Enter choice: _

Enter “D” for Data General (DG) or “H” for Hewlett Packard (HP). TSPAS_DDP stores only one printer name, therefore, all default database reports are sent to the same printer. (In fact, TSPAS only stores one printer. Therefore, if both TSPAS_DDP and TSPAS_SP are used at the same location, reports generated from either program are sent to the printer designated here.)

Export Default Database—When a default database is exported, TSPAS_DDP copies the information contained in a specified default database to a file which can be sent to other DG installations. Only a locked database can be exported, and within it, only the saved TE models are exported. (Any unsaved models are not transported.) TSPAS_DDP employs the following naming convention:

XXXXXXXXXX.IMPORT

where XXXXXXXXXXXX represents the default database name with any embedded spaces converted to underscores, “_.” This file can be sent via standard DG (IS) file transfer procedures to the desired DG installation. Once filed in IS/CLI on the receiving DG system, the TSPAS_SP user imports this default database via the Import option in the TSPAS_SP Utilities menu (thus the extension IMPORT).

Export TE Appraisal Information—When a TE model is exported, TSPAS_DDP copies only the information for a saved TE model (either equation-based or adjusting-averages) to a file which can be sent to other DG installations. Only saved TE models can be exported. TSPAS_DDP employs the following naming convention:

XXXXXXXXXX.YYYYYYYYYY.IMPORT

where **XXXXXXXXXX** represents the default database name and **YYYYYYYYYY** the TE model name. TSPAS_DDP converts embedded spaces to underscores, “_,” in both the database name and TE model name. This file can be sent via standard DG (IS) file transfer procedures to the desired DG installation. Once filed in IS/CLI on the receiving DG system, the TSPAS_SP user imports this TE model using the Import option in the TSPAS_SP Utilities menu (thus the extension IMPORT).

Reference

Schuster, Ervin G.; Jones, J. Greg; Meacham, Mary L.; Cahoon, Rick D. 1995. Timber Sale Planning and Analysis System: a user's guide to the TSPAS Sale Program. Gen. Tech. Rep. INT-GTR-321. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 74 p.

Appendix A: Instructions for Acquiring and Installing TSPAS_SP and TSPAS_DDP

Although anyone with DG access can retrieve the TSPAS software from Missoula, two of the steps outlined below can only be performed by an ORACLE database administrator (DBA). However, we suggest that the ORACLE DBA perform all seven steps listed below.

- (1) RIS TSPAS dump file
- (2) Load TSPAS dump file
- (3) Install TSPAS using the included CLI macro "install_tspas"
- (4) Ensure TSPAS_DDP and TSPAS_SP users have ORACLE profiles
- (5) Add to drawer searchlist
- (6) Test TSPAS_DDP and TSPAS_SP
- (7) Clean up dump files using the included CLI macro "cleanup_tspas."

Each of these steps is discussed in some detail below.

STEP 1: RIS TSPAS dump file

The RIS procedure is performed in IS. From the Main Menu and subsequent menus, choose the options as follows:

MAIN MENU

- (3) Utilities
- (6) Retrieval and DCC Access
- (1) Retrieval

Location of file to be retrieved

Host name: **S22L01A**

(1.Public 2.Staff): **2** Staff Name: **ECON**

Drawer Name: **TSPAS**

Folder Name: **DUMP_FILE**

File Name: **TSPAS.DMP**

STEP 2: Load TSPAS dump file

First, place TSPAS.DMP in the drawer/folder where you want the executable files to reside. (This may or may not be where the programs will be run from, the choice is up to you.) Next, load TSPAS.DMP. From the Main Menu in IS and subsequent menus, choose the options as follows:

MAIN MENU

- (3) Utilities
- (4) Load Dumpfile(s)
- Level (1.Public, 2.Staff, 3.Personal): ?
- Drawer Name: ?
- Folder Name: ?
- Dumpfile Name: **TSPAS.DMP**

The Level, Drawer Name, and Folder Name should be where TSPAS.DMP is stored. This dumpfile contains the following files:

TSPAS_DB.DMP: A dumpfile of the TSPAS ORACLE tables,
FILES.LIS: A list of files included in TSPAS_DB.DMP,
DDP_USER_EXITS.PR: The executable program that processes the TE model (TSPAS Default Database Program),
RUFFLE.PR: The executable program that writes the initial screen for the TSPAS Default Database Program,
TSPAS.PR: The executable TSPAS Sale Program,
TSPAS_DDP.CLI: Executes the TSPAS Default Database Program,
TSPAS_SP.CLI: Executes the TSPAS Sale Program,
INSTALL_TSPAS_DDB.CLI: Starts the procedure for importing ORACLE tables to the DDB instance,

INSTALL_TSPAS_IDB.CLI: Starts the procedure for importing
 ORACLE tables to the IDB instance,
 CLEANUP_TSPAS.CLI: Deletes unnecessary files after TSPAS is loaded,
 CREATE_PUB_SYN.SQL: Creates necessary synonyms,
 TSPAS_GRANT.SQL: Creates necessary grants,
 DROP_TSPAS_TABLES.SQL: Drops ORACLE tables used in TSPAS.
 ONLY used if your DG contains a previous version (1995) of TSPAS.

The Default Database Program forms are

TSPAS_AA_APPR.FRM
 TSPAS_AA_REGEN.FRM
 TSPAS_AA_REGEN_DEFLTS.FRM
 TSPAS_CAT_LIST.FRM
 TSPAS_COST.FRM
 TSPAS_FELLBUCK_COST.FRM
 TSPAS_FOREST_COST.FRM
 TSPAS_LOG_LIST.FRM
 TSPAS_MAIN.FRM
 TSPAS_MISC_LIST.FRM
 TSPAS_NONTMBR_OUTS.FRM
 TSPAS_REAL_CHNG.FRM
 TSPAS_REGEN_VOL_NEW.FRM
 TSPAS_RV_APPR.FRM
 TSPAS_SKIDLOAD_COST.FRM
 TSPAS_STRATA_COMBO_LIST.FRM
 TSPAS_STRATA_LIST.FRM
 TSPAS_TE_APPR.FRM
 TSPAS_TE_MINBID.FRM
 TSPAS_TE_REGEN.FRM
 TSPAS_TE_REGEN_DEFLTS.FRM
 TSPAS_TE_REGEN_LIST.FRM
 TSPAS_TE_REGEN_VOL.FRM

**** **NOTE regarding steps 3 and 4:** These steps **MUST** be performed by
 a person with ORACLE DBA privileges. At this point the DBA needs to de-
 cide whether the TSPAS tables should be placed in the DDB or the IDB in-
 stance of ORACLE. Once that choice is made, follow Steps 3-5 as appropriate.

STEP 3: Install TSPAS

Navigate to the IS drawer and folder containing TSPAS.DMP. On the com-
 mand line type "**install_tspas_ddb**" or "**install_tspas_idb**" (as appropri-
 ate)." (The install macro temporarily modifies the drawer's searchlist to in-
 clude the directories needed for this step.) You will be prompted for a user
 name and password. Enter the user name "**FSDBA**," then enter your
 ORACLE password. Next type in the indicated responses to the following
 questions:

Import file: EXPDAT.DMP > **TSPAS_DB.DMP**
 Enter insert buffer size (minimum is 4096): 10240 > **(RETURN)**
 List contents of import file only (Y/N): N > **(RETURN)**
 Ignore create errors due to object existence (Y/N): Y > N
 Import grants (Y/N): Y > N
 Import the table data (Y/N): Y > **(RETURN)**
 Import entire export file (Y/N): Y > **(RETURN)**
 ..Importing table "....."

After all the tables have been imported, the "FS DATA BASE ADMINISTRATION UTILITY" menu will appear on the screen. Choose option 4, "SQL*Plus," from this menu. When asked for the database, respond with **DDB** or **IDB** (as appropriate). Once again you will be asked for the password; enter it as above. When you get the prompt "SQL>" enter the following commands:

```
SQL> start create_pub_syn;  
      synonym created  
      synonym created
```

.

.

.

```
SQL> start tspas_grant;  
      grant succeeded  
      grant succeeded
```

.

.

.

```
SQL> bye
```

Press **CANCEL/EXIT** to leave the FSDBA utility.

STEP 4: Ensure TSPAS_DDP and TSPAS_SP users have an ORACLE profile

Both TSPAS_DDP and TSPAS_SP access tables in the ORACLE database. Anyone wishing to run either program must have (at least) CONNECT privileges to the ORACLE database.

STEP 5: Add to drawer searchlist

Add the following two directories to the searchlist for the drawer/folder containing the executable files:

:ORACLE

:FSIA:DDB or FSIA:IDB (as appropriate)

If TSPAS_DDP and TSPAS_SP are to be run from another drawer/folder, then add these directories to that drawer's searchlist as well. Finally, add the following directory to the searchlist of the drawer where TSPAS_DDP and TSPAS_SP are to be run, or to the drawer containing the executable files:

:PUBLIC:LIBRARY:ROUTINES

STEP 6: Test run TSPAS_DDP and TSPAS_SP

To execute TSPAS_DDP, type "TSPAS_DDP" on the command line of the drawer/folder specified in Step 5. Consult the main portion of this guide for details regarding the operation of this program. To execute TSPAS_SP, type "TSPAS_SP" on the command line of the drawer/folder specified in Step 5. Consult the TSPAS_SP user guide for details regarding the operation of TSPAS_SP.

STEP 7: Clean up leftover files

After installing TSPAS, the files no longer necessary can be removed from the system. If the installation was successful, navigate to the directory containing the dumpfile, and on the command line type "**cleanup_tspas**." Do not type this command if the installation was not successful, or you have to retrieve the dumpfile again.

Appendix B: Glossary

The following contains an alphabetical listing of the important words and terms used in TSPAS_DDP and TSPAS_SP. Each word or term is followed by a short definition or description, as appropriate. If a definition requires use of another glossary-defined term, that term will appear in upper- and lower-case letters.

Adjustment Set—A model used to estimate the amount per Unit of Measure of Timber a buyer would be willing to pay for a timber sale. These models are based on past timber sales.

Adjustor—An argument in a transaction evidence model used to estimate stumpage price. The TSPAS Information Manager specifies the Adjustors and the corresponding adjustments, and the TSPAS_SP users enter the Cutting Unit-specific values for these Adjustors.

Advertised Rate—The minimum dollar amount for which a timber offering can be sold, measured in dollars per Unit of Measure for Primary Product. It equals the larger of (a) Indicated Advertised Rate or (b) Base Rate.

Analysis Year—The year for which all TSPAS_SP analyses pertain, normally the current year. All monetary values (benefits and costs) displayed in TSPAS_SP are based on that year.

Analysis-Year Dollars—Dollars having the same purchasing power as dollars in the Analysis Year. These monetary values appear on both TSPAS_SP screens and reports.

Area of Influence—The general geographical area surrounding the sale which will encompass nontimber output considerations. This area will vary with the nontimber output; it may be as small as the sale boundary or as large as several states in the case of migratory animals.

Average Stumpage Price—Entered on the TSPAS_DDP Timber Product Information screen (Lists & Categories menu). These prices are used as the default stumpage prices for Secondary Timber Products.

Base Rate—A floor for Advertised Rate. Base Rate is the minimum amount for which timber can be sold, and is measured in dollars per Unit of Measure for Primary Product. Base Rate is the larger of (a) Minimum Bid Rate or (b) Essential Regeneration plus Minimum Deposit to Treasury.

Base Year—The year chosen for expressing all prices and costs in TSPAS_DDP. This year is specified on the General Information screen (Main Menu).

Base-Year Dollars—All prices and costs in the TSPAS Default Database are expressed in terms of dollars having the buying power of currency in the Base Year.

Bid Adjustment—Sometimes referred to as a “statistical adjustment factor,” the bid adjustment is used to establish the Indicated Advertised Value. High Bid minus the Bid Adjustment equals Indicated Advertised Rate. Bid Adjustment is entered on the TSPAS_DDP Cost and Bid Adjustments screen (Existing Stand Appraisal menu, and Regenerated Stand Appraisal menu).

Bid Premium—An estimate of the average amount by which the winning bid for the sale is expected to exceed the Advertised Rate, measured in dollars per Unit of Measure for Primary Product. Bid Premium,

used in residual value appraisal only, is entered by species on the TSPAS_DDP Stand Appraisal screen (Main Menu). In TSPAS_SP, Bid Premium is calculated as a weighted average across all timber species (weights based on the species Harvest Volumes).

Contract Length—The number of years in the sale being planned.

Cost Adjustment (Transaction Evidence Appraisal)—One of up to five adjustments that are subtracted from the TE Model estimated value to compute High Bid. The TSPAS Information Manager identifies the necessary adjustments on the TSPAS_DDP Cost and Bid Adjustments screen (Existing Stand Appraisal and Regenerated Stand Appraisal menus). TSPAS_SP users edit the default adjustments as appropriate.

Cubic Feet per Unit—The number of cubic feet of solid wood per Unit of Measure for the Timber Product.

Current Entry—The first timber harvest being planned for a Cutting Unit. This is the timber sale being planned.

Cutting Unit—A contiguous track of land on which timber is harvested or planned for harvest.

Database Administrator (DBA)—A person assigned the duties of the Oracle database administrator for a Forest Service Data General computer.

Database Name—Name assigned to a TSPAS default database when a new database is initiated. TSPAS_SP users select a Default Database name when a new sale is initiated.

Decade—In TSPAS_SP, Decade specifies the timing of Nontimber Output quantities and the activities in the Regenerated Stand. In TSPAS_DDP, decades are counted from the establishment of the Regenerated Stand.

Dependent Variable—The estimated value of a Transaction Evidence Equation.

Dependent Adjustor—The estimated value of a Transaction Evidence Adjustment Set.

Discount Rate—The interest rate used in calculating the present value of a future sum of money. TSPAS_SP requires this to be a real discount rate, meaning that adjustments for inflation are not included in this rate.

Effective Date (Default Database)—Date entered by the TSPAS Information Manager identifying the year and month when the TSPAS Default Database was developed. Entered on the TSPAS_DDP General Information screen (Main Menu).

Effective Date (TE Appraisal)—Date entered by the TSPAS Information Manager identifying the year and month when a Transaction Evidence Model was entered. Entered on the TSPAS_DDP TE General Information screen (Existing Stand Appraisal menu).

Effective Road Credits—The credits from construction of Specified Roads that a timber purchaser can use as payment (credit) for timber. Effective credits is calculated as the smaller of: (a) Specified Road costs or (b) the difference between High Bid and Base Rate.

Environmental Protection Costs—The cost of timber sale-related activities required for environmental protection (such as erosion control or fire prevention), measured in dollars per Unit of Measure for Primary Product. In TSPAS_DDP it is entered on the Forest-Wide Average Costs screen (Costs menu) for Residual Value Appraisal.

Essential Regeneration—The cost of the minimum regeneration activities required to satisfy regeneration requirements, measured in dollars for Unit of Measure for Primary Product.

Existing Stand—The timber stand that currently exists on a Cutting Unit.

Felling & Bucking Costs—The logging costs associated with felling and bucking trees, expressed as dollars per Unit of Measure for Primary Product. In TSPAS_DDP entered on the Felling and Bucking Costs screen (Costs menu) for Residual Value Appraisal.

Final Product Price—Price for the final manufactured product. For example, for sawtimber, the final product would be lumber.

Final Harvest (existing stand)—The harvest entry which removes all the remaining trees from the Existing Stand. The final harvest marks the transition from the Existing Stand to the Regenerated Stand.

First Rotation—The first rotation of the regenerated stand. A rotation refers to a “timber crop,” beginning with the establishment of the stand and ending with the Final Harvest of that stand.

Future Entry—Any harvest after the Initial Entry planned for the Existing Stand or the Regenerated Stand.

Harvest Entry—A planned harvest for a Cutting Unit, either the Current or Future Entry.

Harvest Volume—The total amount of wood to be harvested for a Cutting Unit or Sale Alternative.

Haul Costs (w/o maintenance)—The cost of transporting logs from a landing to a processing facility, excluding road maintenance costs, expressed as dollars per Unit of Measure for Primary Product.

Haul Costs (including maintenance)—The cost of transporting logs from a landing to a processing facility, including the road maintenance costs associated with that hauling, expressed as dollars per Unit of Measure for Primary Product.

High Bid—The amount the winning bidder is estimated to offer for a timber sale, expressed as dollars per Unit of Measure for Primary Product. For Residual Value Appraisal, High Bid equals the Advertised Rate plus the Bid Premium. For Transaction Evidence Appraisal, High Bid is the value estimated by the TE Model minus the Cost Adjustment(s) specified by the TSPAS Information Manager.

Incremental Road Costs—The additional road construction and/or reconstruction cost uniquely associated with accessing a specific Cutting Unit. This includes only the portion of road needed to access that Cutting Unit and no others in the Sale Alternative. These costs are measured as the change (savings) in road costs associated with dropping a specific Cutting Unit from the sale. Incremental road costs are specified on the TSPAS_SP Current Road Costs screen (Sale Alternative menu).

Independent Adjustor—An argument in a transaction evidence model used to estimate stumpage price. The TSPAS Information Manager

specifies the Adjustors and the corresponding adjustments, and the TSPAS_SP users enter the Cutting Unit-specific values for these Adjustors.

Independent Variable—An argument in a transaction evidence model used to estimate stumpage price. The TSPAS Information Manager specifies the Variables and their coefficients, and the TSPAS_SP users enter the Cutting Unit-specific values for these Variables.

Indicated Advertised Rate—A preliminary estimate of the Advertised Rate. In Residual Value Appraisal, indicated advertised rate is the Mill-Delivered Value minus Stump-to-Mill Costs. In Transaction Evidence Appraisal, it is calculated by applying an adjustment (as specified by the TSPAS Information manager) to High Bid.

Inflation Rate—The average increase in the general level of prices throughout the economy, expressed as an annual percentage rate of change.

Initial Entry—The first timber harvest being planned for a Cutting Unit.

K-V Available—The amount of Knutson-Vandenberg funds predicted to be available for K-V Other Planned activities.

K-V Costs—The total expected Knutson-Vandenberg costs for a Sale Alternative. It equals the sum of K-V Essential Regeneration and Other K-V.

K-V Essential Regeneration—The cost of the minimum regeneration activities required for a Sale Alternative.

K-V Other—Knutson-Vandenberg funds used for “sale area betterment.”

Log Value—The value of logs delivered to a processing facility, expressed as dollars per Unit of Measure for Primary Product. Used in Residual Value Appraisal, it is calculated separately for each timber species as:

$$\text{Log Value} = (\text{Price}) * (\text{Recovery}) - \text{Manufacturing Cost}$$

Logging and Related Costs—A category for Real Rates of Change that are applied to logging and logging-related activities. In TSPAS_DDP, these are entered in the Miscellaneous Costs and Prices screen (Price and Cost Changes menu).

Logging Cost Categories—Categories for logging costs (other than logging method) that are developed by the TSPAS Information Manager and appear on the Skidding & Loading and Felling & Bucking Cost screens (Cost menu). In TSPAS_SP developing a harvesting prescription involves selecting a Logging Cost Category.

Logging Methods—Categories for logging methods that are developed by the TSPAS Information Manager and appear on the Skidding & Loading and Felling & Bucking cost screens (Cost menu). In TSPAS_SP, developing a harvest prescription involves selecting a Logging Method.

Management Intensity—Categories for the amount or level of management applied to the Regenerated Stand.

Manufacturing Cost—The cost of manufacturing delivered logs into Timber Product ready for shipping. It is expressed in dollars per Unit of Measure for Primary Product (log scale). In RV appraisal, they are used in calculating appraised value for both current and future entries. In TE appraisal, manufacturing costs are calculated internally and used in projecting future stumpage prices.

Mill-Delivered Value—The weighted average Log Value across species, where the weights are based on the species Harvest Volumes. It is computed for each Harvest Entry on each Cutting Unit in Residual Value Appraisal.

Minimum Bid Rate—The minimum amount per Unit of Measure for Timber Products that must be paid by the purchaser. A Minimum Bid Rate for each species is specified on the TSPAS_DDP General Appraisal Information screen (Main Menu).

Minimum Deposit to Treasury—The minimum amount per Unit of Measure for Timber Products that must be returned to the U.S. Treasury. A Minimum Deposit to Treasury for each timber product is specified on the TSPAS_DDP Timber Product Information screen (Lists & Categories menu).

Net Sale Value—The net revenue estimate for a Sale Alternative. Net Sale Value equals the Total Timber Value minus K-V Costs minus Forest Service Costs.

Net Value (1)—The estimated gross revenue the Forest Service will receive from harvesting a Cutting Unit. It equals High Bid minus Incremental Road Cost. In the case of an entire Sale Alternative, it equals High Bid minus Effective Road Credits.

Net Value (2)—The estimated net revenue the Forest Service will receive from harvesting a Cutting Unit. It equals the Total Timber Value (which includes Secondary Timber Products), minus K-V Essential Regeneration, minus Forest Service Costs.

Nonharvest Activities—Any planned land management activity not directly associated with a timber sale. These activities are entered on the TSPAS_SP Nonharvest Activities screen.

Nontimber Outputs—Any timber sale output, other than a Timber Product, that is either quantified or rated for Sale Alternatives. In TSPAS_DDP they are defined on the Nontimber Outputs Definitions screen (Lists & Categories Menu).

Other K-V—An item appearing in several TSPAS_SP reports showing the cost of activities other than Essential Regeneration that are to be financed with Knutson-Vandenberg funds. Other K-V is the K-V Funded portion of Nonharvest Activities costs up to K-V Available. The portion of K-V Funded, Nonharvest Activities cost exceeding K-V Available is assumed to be paid with appropriated dollars.

Other Rotations—Any rotation after the First Rotation of the Regenerated Stand.

Output Name (Nontimber Output)—A code for identifying Nontimber Outputs.

Planned # of Cutting Units in Sale—A TSPAS_SP Transaction Evidence Appraisal field collecting a preliminary estimate of the number of Cutting Units comprising the complete Sale Alternative. This number is used in computing various appraisal components displayed on the Transaction Evidence Appraisal screens. (Note: report computations use the actual number of Cutting Units in a Sale Alternative.)

Potential Sale Requirements—List of activities that may be required of the purchaser as a part of the timber sale contract. Up to 25 potential

requirements are entered on the TSPAS_DDP Potential Sale Requirements screen (Lists & Categories menu). These potential requirements are listed for the user on the TSPAS_SP Harvest Prescriptions (Existing Stand) screen for descriptive purposes only.

Prescriptions—The type of management designated for Cutting Units in the TSPAS_SP Harvest Prescriptions (Existing Stand) screen and the Regenerated Stand Prescription screen. Management actions include logging, site preparation, and regeneration methods as well as other planned activities and requirements.

Present Net Value (PNV)—Benefits (market prices and nonmarket values) discounted to a specified point in time, minus costs discounted to that same time.

Present Value—A dollar amount discounted to a specified point in time, referring to either benefits or costs.

Price—A market price, as in the final Timber Product Price per Unit of Measure for Primary Product (lumber tally).

Primary Product—The Timber Product identified on the TSPAS_SP Sale Description screen to be the main product of the proposed timber sale. This product is used as the basis for appraisals and other procedures. In RV appraisal, the Primary Product is selected directly, but in TE appraisal, it is determined by the TE Model selected.

Product Price—Price for the final manufactured product. For example, for sawtimber, the final product would be lumber.

Profit & Risk—The allowance to the timber purchaser, calculated as a percentage of Price of the Timber Products. In TSPAS_DDP entered on the General Appraisal Information screen (Main Menu).

Purchaser Road Costs—The total cost for roads to be paid by the purchaser, entered on the TSPAS_SP Road Costs screen.

Purchaser Road Credits—The credits from construction of Specified Roads that a timber purchaser can use as payment (credit) for timber.

Real Price and Cost Change—The average annual percentage rate of change over and above the general inflation rate. These changes are entered by decade by the TSPAS Information Manager.

Real Rate of Change—The average annual percentage rate of change over and above the general inflation rate. These changes are entered by decade by the TSPAS Information Manager.

Recovery—Also known as “overrun,” this is a ratio used to convert the Price per Unit of Measure in lumber tally to dollars per Unit of Measure in log scale. Computationally, it is the Harvest Volume of the Primary Product in its Unit of Measure (lumber tally), divided by the log input volume in its Units of Measure (log scale). Used in Residual Value Appraisal for both existing and future stands. In Transaction Evidence Appraisal it is used in projecting stumpage price for future harvests.

Regenerated Stands—Future timber stands following the timber stands that currently exist on the Cutting Units in a Sale Alternative.

Regeneration Methods—Categories for regeneration procedures following a harvest. They are entered in TSPAS_DDP in the Regeneration Costs screen (Costs menu). In TSPAS_SP, they appear on the Harvest

Prescriptions (Existing Stand) screen and the Regenerated Stand Prescription screen.

Residual Value Appraisal—An appraisal method in which the value of standing timber is estimated by subtracting all the costs associated with logging, hauling, and processing that timber from the value of the final Timber Product.

Road Maintenance Cost—The cost attributed to the timber sale for maintaining Forest Service “system” roads.

Rotation—Refers to a “timber crop,” beginning with the establishment of the stand and ending with the last harvest of that stand.

Sale Alternative—A proposed option (or alternative) for the timber sale being planned.

Sale Alternative Data—Data that are entered on a Sale Alternative basis in TSPAS_SP. These data are accessed via the TSPAS_SP Sale Alternative Data Menu.

Sale Data—Data that apply to all Sale Alternatives developed for proposed timber sale. These data are accessed via the TSPAS_SP Sale Data Menu.

Sale Database—The database storing the data specified for a proposed timber sale. This database is developed by the TSPAS_SP user as an individual sale and alternatives are planned.

Sale Name—The name given to a proposed sale in TSPAS_SP. All information stored for a sale is entered and retrieved by this name.

Sale Year—The year the proposed sale is expected to be sold.

Secondary Timber Products—Any Timber Product of interest other than the Primary Product for the proposed sale.

Site Preparation Methods—Categories of site preparation procedures used following harvest. They are entered in TSPAS_DDP in the Site Preparation Costs screen (Costs menu). In TSPAS_SP, they appear on the Harvest Prescriptions (Existing Stand) screen and the Regenerated Stand Prescription screen.

Skidding & Loading Costs—The costs associated with skidding and loading logs, expressed as dollars per Unit of Measure for Primary Product. Used in Residual Value Appraisal, they are entered on the TSPAS_DDP Felling and Bucking Costs, and Skidding and Loading Costs screens (Costs menu).

Species—Categories of timber species entered on the TSPAS_DDP Timber Species screen (Lists & Categories menu). A category may contain one or more species. (Also called Timber Species)

Specified Roads—The roads that are specified for construction or reconstruction as part of a timber sale contract. These roads are part of the Forest Service’s permanent road network and are ultimately paid for by the Forest Service, either through appropriated funds or Effective Road Credits. Though it is the purchaser’s choice to construct these roads (for credits) or to have the Forest Service construct them, the TSPAS_SP user indicates one of these options in the Road Costs screen.

Stand Management Costs—Any cost in a regenerated stand prescription not associated with a harvest. Cost types are specified in the

TSPAS_DDP Stand Management Costs (Regenerated Stand) screen accessed from the Costs menu.

Statistical High Bid—An estimate of the gross revenue that will be received from a Sale Alternative. It equals High Bid minus Effective Road Credits.

Stump-to-Mill Costs—The sum of all purchaser costs related to logging and hauling logs to a processing facility. It equals the sum of the following cost categories: Felling and Bucking Costs, Skidding and Loading Costs, Haul Costs, Environmental Protection Costs, Road Maintenance Costs, Temporary Development Costs, and the dollar per Unit of Measure for Profit and Risk. Used in Residual Value Appraisal only.

TE Adjustment Set Name—Name assigned to a Transaction Evidence Adjustment Set model. All model information is entered and retrieved by this name.

TE Adjustor—An argument in a transaction evidence model used to estimate stumpage price. The TSPAS Information Manager specifies the Adjustors and the corresponding adjustments, and the TSPAS_SP users enter the Cutting Unit-specific values for these Adjustors.

TE Equation Name—Name assigned to a Transaction Evidence (TE) Equation that is defined in TSPAS_DDP after selecting Existing Stand Appraisal (Main Menu). TSPAS_SP users select the TE Equation when TE appraisal is selected on the TSPAS_SP Sale Description screen (Main Menu).

TE Model—A relationship used to estimate the amount per Unit of Measure of Timber a buyer would be willing to pay for a timber sale. This relationship is based on past timber sales.

TE Variable—An argument in a transaction evidence model used to estimate stumpage price. The TSPAS Information Manager specifies the Variables and their coefficients, and the TSPAS_SP users enter the Cutting Unit-specific values for these Variables.

Temporary Development (including roads)—Costs incurred by the purchaser for all temporary developments.

Temporary Development (w/o roads)—Costs incurred by the purchaser for all temporary developments, except costs of temporary roads.

Temporary Roads (cost)—Cost for any low standard road built by the timber purchaser that is not a Specified Road and will not become part of the permanent road system.

TIM—The TSPAS Information Manager.

Timber Product—A final product produced from timber. Timber Products are specified on the TSPAS_DDP Timber Products screen (Lists & Categories menu). In Residual Value Appraisal, the TSPAS_SP user selects all Timber Products. In Transaction Evidence Appraisal, the TSPAS_SP user selects Secondary Products, but the Primary Product is determined when the TE Model is selected.

Timber Species—Categories of timber species entered on the TSPAS_DDP Timber Species screen (Lists & Categories menu). A category may contain one or more species.

Timber Strata—A way of categorizing site characteristics for Regenerated Stands. Each strata consists of up to four Timber Strata Fields, each representing a characteristic of a physical site, such as Timber Species, slope, or soil type. Timber Strata are defined on the TSPAS_DDP Timber Strata Definitions screen (Lists & Categories menu).

Timber Strata Field—A component of a Timber Strata representing a specific physical characteristic, such as vegetation, age, or soil type. Each strata consists of up to four Timber Strata Fields. Strata Fields are defined on the TSPAS_DDP Timber Strata Field Names screen, and valid codes are entered on the Timber Strata Field Codes screen, both accessed from the Lists & Categories menu.

Transaction Evidence Adjustment Set—A model used to estimate the amount per Unit of Measure of timber a buyer would be willing to pay for a timber sale. A model is based on past timber sales.

Transaction Evidence Appraisal—A method for appraising the value of timber in a sale that is based on the experience obtained in past timber sales.

Transaction Evidence Equation—An equation used to estimate the amount per Unit of Measure of timber a buyer would be willing to pay for a timber sale. An equation is based on past timber sales.

Transaction Evidence—Equation Based—An approach to Transaction Evidence Appraisal in which an equation is used to estimate the amount a buyer would be willing to pay for a timber sale. Independent Variables measure the individual sale characteristics, market conditions, etc.

Transaction Evidence—Adjusting-Averages—An approach to Transaction Evidence Appraisal wherein adjustments are applied to an overall average value to estimate the amount a buyer would be willing to pay for a timber sale. Adjustors quantify individual sale characteristics, market conditions, etc.

TSPAS Information Manager (TIM)—The person or persons responsible for developing and maintaining the TSPAS Default Database.

TSPAS Default Database—The database that provides the default values used in TSPAS_SP. It is developed and maintained by the TSPAS Information Manager using TSPAS_DDP.

TSPAS Sale Database—The database which stores the data for the proposed timber sale. This database is developed by the TSPAS_SP user as an individual sale and alternatives are planned.

Unit of Measure—The measurement units used for Timber Products or Nontimber Outputs. They are specified, respectively, in the TSPAS_DDP Timber Product Information screen, and the Nontimber Output Information screen, both accessed from the Lists & Categories menu.

Unit Size—The size in acres of a Cutting Unit.

Value—The dollar value per Unit of Measure for a Nontimber Output.

Variable—An argument in a transaction evidence model used to estimate stumpage price. The TSPAS Information Manager specifies the Variables and their coefficients, and the TSPAS_SP users enter the Cutting Unit-specific values for these Variables.

Volume—Harvest Volume for the Primary Product, measured in Unit of Measure for Primary Product.

Appendix C: Error Messages

The following is a list of error messages that can be encountered in TSPAS_DDP. Ampersand (&), asterisks (*****), at signs (@@@@) and pound signs (####) represent instance-specific words, phrases or numbers in the actual message viewed on the screen. The messages are bolded and ordered alphabetically, with the mask character (i.e. *****, ####) statements preceding other “like” messages. Capitalized terms are screen titles, menu titles, or words in the Glossary (Appendix C). Error messages are followed by an explanation, prevention or remedy as appropriate.

******* does not exist**

(***** represents the **printer name**.) Specifying printer, *****, which is not recognized by IS/CLI on this system.

Adjustor name: “***” not defined**

(***** represents an **Adjustor name**.) Specifying Adjustor, *****, in the appraisal information which is not valid. TSPAS_DDP only recognizes Adjustors defined on the Adjustor Codes and Type—Master List screen (Existing Stand Appraisal menu or Regenerated Stand Appraisal menu). INDEX lists all valid Adjustor names.

Adjustor not defined. Re-enter, select INDEX (S-F2) or REMAINING (S-F6)

Specifying an Adjustor name for the species-specific information which is not valid. TSPAS_DDP only recognizes Adjustors defined on the Adjustor Codes and Type—Master List screen (Existing Stand Appraisal menu or Regenerated Stand Appraisal menu). INDEX lists the species-specific Adjustors included in the current TE Model, and REMAINING lists only the species-specific Adjustors included in the TE Model still requiring this information.

Adjustor not species-specific. Re-enter, select INDEX(S-F2) or REMAIN(S-F6)

Specifying an Adjustor which has been defined, but not as a species-specific (Type 1) Adjustor. Adjustors are defined on the Adjustor Codes and Type—Master List screen (Existing Stand Appraisal menu or the Regenerated Stand Appraisal menu). INDEX lists the species-specific Adjustors included in the TE Model, and REMAINING lists only the species-specific Adjustors included in the TE Model still requiring this information.

Adjustors cannot begin with numerical digits

Attempting to name an Adjustor using a numerical digit (0 through 9) in the first character. An Adjustor name must begin with a letter (a-z, or A-Z) or a non-mathematical symbol (i.e. !, @, #, \$, %, etc.).

Adjustors cannot contain ***. Re-enter or DELETE RCD(F9)**

(***** represents “**embedded spaces**” or “**mathematical symbols.**”) Specifying an Adjustor name which contains an undefined symbol. TSPAS_DDP will not accept an Adjustor name containing an embedded space(s) or any of the following mathematical symbols: plus (+), minus (–), multiply (*), divide (/), less than (<), greater than (>), equals (=), or any bracket: (“”, “”), “[”, “]”, “{”, “}”.

Appraisal method for the *** stand must be completed**

(***** represents “current” or “regenerated.”) Attempting to save the General Information screen without specifying which appraisal method the ***** stand will use. All data requests on this screen must be completed before TSPAS_DDP can save the information.

At *** record**

(***** represents “first” or “last.”) Attempting to move past the ***** item of a list. There are no more records beyond the current one being displayed.

At first valid column

Attempting to move beyond the first editable column on the screen. If this screen displays a column to the left of the current one, its contents are not editable.

“AVERAGE” is a reserved word. Re-enter or select DELETE RECORD (F9)

Specifying “AVERAGE” as an Adjustor or a Variable name. TSPAS_DDP reserves “AVERAGE” for use in TE Model components. Alter or delete this record.

Background information must be completed

Attempting to leave the background information field without providing a background default value. TSPAS_DDP requires a background quantity, even if the value is zero (0.0), for each nontimber output schedule specified.

Base year for *** must be completed**

(***** represents “adjustment set” or “equation.”) Attempting to save a TE Model General Information screen without specifying the Base Year. All data requests on this screen must be completed before TSPAS_DDP can save the information.

Base year must be completed

Attempting to save the General Information screen without specifying the Base Year. All data requests on this screen must be completed before TSPAS_DDP can save the information.

Basis must be completed

Attempting to save the USFS costs for the current entry without providing a “T” or “Y” for Basis in at least one USFS cost. All data requests on this screen must be completed before TSPAS_DDP can save the USFS cost information.

Cannot alter predefined *****

(***** represents “adjustors” or “variables.”) Attempting to access the predefined, “system” Adjustors/Variables: TOTVOL and TOTAC. TSPAS_DDP reserves these two Adjustors/Variables for special purposes and prohibits access to them on this screen. Note, TOTVOL and TOTAC can be used in any TE Model.

Cannot delete ***—Default Database used by at least one sale**

(***** represents a Default Database name.) While attempting to delete default database, *****, TSPAS_DDP detected at least one TSPAS_SP sale using the database. TSPAS_DDP prohibits deleting databases used in planning TSPAS_SP sales.

Cannot delete ***—Default Database used in at least one sale**
(***** represents “cost adjustment,” “default value set,” “log cost cat,” “logging method,” “mngmnt intensity,” “nontimber output,” “regen category,” “regen stand prscrptn,” “sale requirement,” “site prep cat,” “species,” “stand mngmt cat,” “strata definition,” “strata field,” “strata field code,” or “timber product,” “USFS cost cat.”) While attempting to remove a ***** from the database, TSPAS_DDP detected at least one sale using the default database. TSPAS_DDP prohibits deleting saved information from any database used in planning TSPAS_SP sales.

Cannot delete ***—present in a TE @@@@**
(***** represents “adjustor” or “variable” and @@@@ represents “adjustment set” or “equation.”) While attempting to remove a(n) ***** from the Master List (Existing Stand Appraisal menu or the Regenerated Stand Appraisal menu), TSPAS_DDP detected at least one model using the *****. TSPAS_DDP prohibits removing an Adjustor/Variable from the Master List which is used in any TE Model within any default database.

Cannot delete ***—TE model used in at least one sale**
(***** represents a TE model name.) While attempting to delete TE Model, ***** , TSPAS_DDP detected at least one TSPAS_SP sale using the model. TSPAS_DDP prohibits deleting TE Models used in planning TSPAS_SP sales.

Cannot delete a strata field until all associated strata codes are deleted
Attempting to remove a strata field from the list of active strata fields before all the valid strata codes have been deleted. TSPAS_DDP will delete only the last strata field and then only after all valid strata codes have been deleted. Timber strata codes are deleted from the Timber Strata Codes screen (Lists & Categories menu). Note, deleting strata codes results in deleting all associated data, including timber strata definitions, regenerated stand prescriptions, and Nontimber Outputs.

Cannot delete product—product specified for *** on Timber Prod Info**
(***** represents “costs” or “regen data.”) Attempting to remove a Timber Product from the Timber Product Codes screen which has been designated as the timber-related cost product or Regenerated Stand product or both. TSPAS_DDP prohibits deleting this product until another product has been specified in the lower box on the Timber Product Information screen (Lists & Categories menu).

Cannot switch from ** to @@—Default Database used by at least one sale
(** and @@ represent “RV,” “TE,” or “AA,” “EQN.”) Attempting to alter the appraisal method for either the existing stand or the Regenerated Stand after the database has been used in planning at least one TSPAS_SP sale. In order to preserve TSPAS_SP sale integrity, TSPAS_DDP prohibits switching between the RV and TE methods for both the existing and Regenerated Stands, and between adjusting-averages (AA) and equation-based (EQN) for the Regenerated Stand. Note, however, TSPAS_DDP permits switching between adjusting-averages and equation-based TE methods for the Existing Stand.

Cannot view or alter a saved model in a locked database. Unlock database

Attempting to access a saved model within a locked database.

TSPAS_DDP can only access saved TE Models from unlocked databases.

Cannot view or alter existing stand model—model used in at least one sale

Attempting to access a saved, existing stand TE Model being used in planning at least one TSPAS_SP sale. In order to preserve TSPAS_SP sale integrity, TSPAS_DDP prohibits accessing any TE Model used in planning a TSPAS_SP sale.

Cannot view or alter regen model—Default Database used in at least one sale

Attempting to access a saved, regenerated stand TE Model being used in planning at least one TSPAS_SP sale. In order to preserve TSPAS_SP sale integrity, TSPAS_DDP prohibits access to the regenerated stand model whenever the default database is used in planning a TSPAS_SP sale. In this situation, the regenerated stand model can only be viewed by either (1) copying the default database, switching to the new database and accessing the model there, or (2) deleting every sale using the default database.

Can't insert into or update data in a view

(Error generated by ORACLE.) Attempting to append or alter the timber strata/management intensity INDEX or REMAINING list. Combinations of Timber Strata and Management Intensity can be appended, deleted, and/or modified only on the Regenerated Stand Prescription screen, Main Menu.

Complete either COST field or ***, SITE and REG fields**

(***** represents "LOG" or "VAL.") Attempting to save incomplete Regenerated Stand information. TSPAS_DDP requires completing the COST field when specifying a stand management activity. Alternatively, specifying a Regenerated Stand harvest entry requires completing the *****, SITE and REG fields.

Complete this *** or press CANCEL/EXIT**

(***** represents "field" or "window.") Attempting to leave a field or window without providing information for all data requests.

TSPAS_DDP cannot continue until the field or window is complete. Alternatively, select CANCEL/EXIT to exit.

Constant value: ##### greater than upper limit of 21474836.00

(##### represents the number entered.) Attempting to specify a coefficient or adjustment in the TE Model screen which exceeds the upper limit. TSPAS_DDP prohibits specifying values greater than 21,474,836.00 because larger values may terminate the TSPAS_SP program.

Cost-related tmbr prod missing. Complete Tmbr Prod Info on List & Cats menu

Attempting to access a screen from the Cost menu before specifying the cost-related Timber Product. Many costs entered in TSPAS_DDP are specified on a "per unit" basis of a particular product. TSPAS_DDP requires providing the cost-related product before the costs are entered.

Return to the Timber Product Information screen (Lists & Categories menu) and specify the cost-related Timber Product in the lower box.

Cubic feet missing for product. Complete Tmbr Prod Info on List & Cats Menu

Specifying a TE Model product which is missing cubic feet information. TSPAS_DDP requires providing all Timber Product information before the product can be specified on the TE General Information screen. Alter Timber Product or select CANCEL/EXIT, return to the Timber Product Information screen (Lists & Categories menu) and complete all data requests.

Database: *** is current**

(***** represents a **Default Database name**.) Attempting to switch to default database ***** which is currently active. TSPAS_DDP did not perform the switch.

Database Unlocked. Re-lock database to access associated TSPAS sales

The current database has just been unlocked. TSPAS_SP cannot access any sale using this database until the database is Verified and Locked again.

Default Database: *** now in effect**

(***** represents a **Default Database name**.) Switching the currently active database. TSPAS_DDP indicates that default database, *****, is now active.

Default Database already exists

Attempting to copy a default database into another database that already exists. When copying default databases, a new database name must be specified for the destination database.

Default Database does not exist

Specifying a default database name which has not been defined in the TSPAS Default Database. INDEX lists all existing default databases.

Default Database locked

Attempting to delete a default database which is locked. TSPAS_DDP deletes only unlocked default databases which are not used in planning any TSPAS_SP sales.

Default Database name must be completed

Attempting to leave a default database name field without providing a name. TSPAS_DDP cannot continue until a name is provided or CANCEL/EXIT is selected. INDEX lists all existing default databases.

Default Database not verified and locked

Attempting to export an unlocked default database. TSPAS_DDP will export only a locked database. Locking a default database is accomplished via Verify and Lock Database (Main Menu).

Default Database/TE model already exists

Attempting to copy a TE Model into another TE Model which already exists under the default database specified. When copying TE Models, a new TE Model name must be specified for the destination model.

Default Database/TE model does not exist

Specifying a TE Model which has not been defined under the default database specified. TSPAS_DDP recognizes INDEX in both the default database field and the TE Model field.

Default Database/TE model not saved

Attempting to export a TE Model which has not been saved. The TSPAS_DDP model export procedure accepts only TE Models which have successfully completed the Save procedure (Existing Stand Appraisal menu).

Defaults incomplete for species-specific ***. Complete Species-Spec Dflts**

(***** represents "adjstr" or "var.") Attempting to save the TE Model without completing the species-specific default values. Provide values for each Timber Species listed, for each species-specific Adjustor/Variable in the model (Species-Specific Default screen).

Defaults missing for species-specific ***. Complete Species-Spec Dflts**

(***** represents "adjustor" or "variable.") Attempting to save the TE Model without specifying the species-specific default values. Provide values for each Timber Species listed, for each species-specific Adjustor/Variable in the model (Species-Specific Default screen).

Dependent *** description must be completed**

(***** represents "adjustor" or "variable.") Attempting to save the TE General Information screen without describing the value estimated by the TE Model. All data requests on this screen must be completed before TSPAS_DDP can save the information.

Discount rate must be completed

Attempting to save the General Information screen without specifying a discount rate. All data requests on this screen must be completed before TSPAS_DDP can save the information.

Duplicate ***. Re-enter or select DELETE RECORD (F9)**

(***** represents "adjustor," "cost adjustment," "cost category," "decade," "default value set name," "logging method," "management intensity," "nontimber output," "potential sale requirement," "regeneration category," "site preparation category," "stand management category," "timber product," "timber species," "timber strata definition," "timber strata field code," "timber strata field name," "USFS cost category," or "variable.") While inserting new information into the default database during a save, TSPAS_DDP encountered a new record which already exists in the database. TSPAS_DDP prohibits specifying duplicate categories. The save is interrupted and the duplicate category is replaced with stars. Alter the category, delete the record or select CANCEL/EXIT to exit without changes.

Duplicate timber species. Re-enter or select INDEX (S-F2) for list

Specifying a Timber Species for a regenerated stand prescription already present for this prescription. TSPAS_DDP prohibits specifying duplicate Timber Species on the regenerated stand prescription species list. INDEX lists all valid Timber Species.

Effective *** must be completed**

(***** represents “month” or “year.”) Attempting to save the General Information screen or the TE General Information screen without specifying the Effective Month or the Effective year. All data requests on this screen must be completed before TSPAS_DDP can save the information.

Either COST or STAND AGE must be completed

While saving the regenerated stand prescription, TSPAS_DDP encountered a record missing either the COST or STAND AGE information. For stand management activities, TSPAS_DDP requires specifying a category in the COST field and providing a decadal stand age for the activity.

ERROR # @@**Appraisal information from General Information screen incomplete
Select General Information from Main Menu**

(@@ represents an incremented number. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the appraisal method for the Existing Stand or the Regenerated Stand had not been provided. All data requests on the General Information screen must be completed before the default database can be successfully locked. Return to the General Information screen (Main Menu) and provide the missing appraisal method.

ERROR # @@**Appraisal information from General Information screen missing
Select General Information from Main Menu**

(@@ represents an incremented number. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the appraisal method for both the Existing Stand and the Regenerated Stand have not been provided. All data requests on the General Information screen must be completed before the default database can be successfully locked. Return to the General Information screen (Main Menu) and provide the missing appraisal methods.

ERROR # @@**Felling and bucking costs missing****Select Costs from Main Menu**

(@@ represents an incremented number. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Felling and Bucking Costs had not been provided. When Residual Value is selected for the Existing Stand and/or the Regenerated Stand (General Information screen, Main Menu), TSPAS_DDP requires specifying the Felling and Bucking Costs for each Logging Method, for each Log Cost Category. Return to the Felling and Bucking Costs screen (Costs menu) and provide the missing cost information.

ERROR # @@**Forest-wide average costs incomplete (*****)****Select Costs from Main Menu**

(@@ represents an incremented number. ***** represents “ENV PRTCT COST,” “HAUL COST,” “PROFIT RISK,” “ROAD MAIN,” “SPEC ROAD COST,” “TMP DEV COST,” or “USFS COST.” Note, # represents number sign.) During the Verify procedure, TSPAS_DDP

determined that a Forest-wide average cost had not been provided. All data requests on the Forest-wide Average Costs screen must be completed before the default database can be successfully locked. Return to the Forest-wide Average Costs screen (Main Menu) and provide the missing cost.

ERROR # @@

General appraisal information incomplete

Select the General Appraisal Information from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the species information for some Timber Product had not been completely specified. All data requests in the lower box of the General Appraisal Information screen must be completed before the default database can be successfully locked. Return to the General Appraisal Information screen (Main Menu) examine all Timber Products, and provide the missing information.

ERROR # @@

General appraisal information missing

Select the General Appraisal Information from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the general appraisal information had not been provided. TSPAS_DDP requires specifying information for all relevant species, for each Timber Product defined. Return to the General Appraisal Information screen (Main Menu) and provide the missing information.

ERROR # @@

General information for a saved TE model incomplete

Select TE General Information from Existing Stand Appraisal Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the effective month, effective year, Base Year, Dependent Adjustor/Variable description or the TE Model Timber Product had not been provided for at least one of the saved TE Models. All data requests on the TE General Information screen must be completed before the default database can be successfully locked. Return to the TE General Information screen (Existing Stand Appraisal menu) for each saved TE Model and provide the missing information. Note, correcting this error requires "unsaving" each model, providing the missing information (when necessary) and, then, selecting Save Equation to return the model to saved status.

ERROR # @@

General information for the regenerated stand TE model incomplete

Select TE General Information from Regenerated Stand Appraisal Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the effective month, effective year, Base Year, Dependent Adjustor/Variable description or the TE Model Timber Product had not been provided for the regenerated stand TE Model. All data requests on the TE General Information screen must be completed before the default database can

be successfully locked. Return to the TE General Information screen (Regenerated Stand Appraisal menu) and provide the missing information. Note, correcting this error may require “unsaving” the model. If so, after providing the missing information, select Save Equation to return the model to saved status.

ERROR # @@

General information incomplete (**)**

Select General Information from Main Menu

(@@ represents an **incremented number**. ***** represents “DISCOUNT RATE,” “SU BASE YEAR,” or “SU BASE YEAR INT.” Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Discount Rate or the Base Year had not been provided. All data requests on the General Information screen must be completed before the default database can be successfully locked. Return to the General Information screen (Main Menu) and provide the missing information.

ERROR # @@

Logging cost categories missing

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the logging cost categories had not been provided. When Residual Value is selected for the Existing Stand and/or the Regenerated Stand (General Information screen, Main Menu), TSPAS_DDP requires specifying at least one Logging Cost Category. Return to the Log Cost Categories screen (Main Menu) and provide the relevant Log Cost Categories for the default database area.

ERROR # @@

Logging methods missing

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Logging Methods had not been provided. When Residual Value is selected for the Existing Stand and/or the Regenerated Stand (General Information screen, Main Menu), TSPAS_DDP requires specifying at least one Logging Method. Return to the Logging Methods screen (Main Menu) and provide the relevant Logging Methods for the default database area.

ERROR # @@

Management Intensity definitions missing

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Management Intensity definitions had not been provided. TSPAS_DDP requires specifying at least one regenerated stand prescription that requires providing at least one Management Intensity definition. Return to the Management Intensity Definitions screen (Lists & Categories menu) and specify the relevant Management Intensity definitions for the default database area.

ERROR # @@**No existing stand TE models developed****Select Existing Stand Appraisal from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that no TE Model information had been provided. When a TE appraisal method is selected for the Existing Stand (General Information screen, Main Menu), TSPAS_DDP requires developing at least one TE Model and providing all relevant model information. Return to the Existing Stand Appraisal menu and develop at least one TE Model relevant to the default database area. Note, TSPAS_DDP requires a default database specifying TE appraisal to contain at least one *saved* TE Model, before the database can be locked.

ERROR # @@**No existing stand TE models saved****Select Existing Stand Appraisal from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that none of the existing stand TE Models present in the default database have successfully completed the save procedure and been marked "saved." When a TE appraisal method is selected for the Existing Stand (General Information screen, Main Menu), TSPAS_DDP requires the default database to contain at least one saved, existing stand TE Model. Return to the Existing Stand Appraisal menu (under a relevant TE Model) and select Save Equation. If the Save procedure terminates successfully, answer "Y" to the Save question.

ERROR # @@**No harvest activity, or a stand management activity occurring after harvest activity for strata/mgt int: ***** / &****Select the Regenerated Stand Prescriptions from Main Menu**

(@@ represents an **incremented number**. ***** represents a **strata definition**, given in the form *** ***, & represents a **Management Intensity**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that either the volume for timber strata/management intensity combination, ***** / &, had not been provided or the latest activity for the combination was not a timber harvest activity. TSPAS_DDP requires that prescriptions for each timber strata/management intensity combination include at least one timber harvest activity and that the last activity planned be a timber harvest. Return to the Regenerated Stand Prescription screen (Main Menu) proceed to timber strata definition, *****, and adjust as necessary the activities associated with Management Intensity &.

ERROR # @@**No volume found for strata/mgt int : ***** / &****Select the Regenerated Stand Prescriptions from Main Menu**

(@@ represents an **incremented number**. ***** represents a **strata definition**, given in the form *** ***, & represents a **Management Intensity**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the volume for timber strata/management intensity combination, ***** / &, had not been provided.

TSPAS_DDP requires specifying a harvest activity and associated volume for each timber strata/management intensity combination defined. Return to the Regenerated Stand Prescription screen (Main Menu) proceed to Timber Strata definition, *****, and provide timber Harvest Volumes for the harvest activity(ies) associated with Management Intensity &.

ERROR # @@

Price and cost changes incomplete (***)**

Select Price and Cost Changes from Main Menu

(@@ represents an **incremented number**. *****, represents "GEN COST," "INFLATE RATE," "LOG REL COST," or "USFS ADMIN." Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that either the general inflation rate or one of the miscellaneous costs and prices had not been provided. All price and cost changes data requests must be completed before the default database can be successfully locked. Return to the Price and Cost Changes menu (Main Menu) and provide the missing information. When "*****" is "Gen Cost," "LOG REL COST," or "USFS ADMIN" proceed to the Miscellaneous Costs and Prices screen and when "*****" is "INFLATE RATE" to the General Inflation Rates screen.

ERROR # @@

Regenerated stand information incomplete

Select the Regenerated Stand Prescriptions from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the regenerated stand prescription information for some strata definition had not been completely specified. TSPAS_DDP requires providing Timber Species, Management Intensity, Site Preparation category, regeneration category, TE default value set (for TE) or Log Cost Category (for RV), and stand age for each harvest activity, for each strata definition. Return to the Regenerated Stand Prescriptions screen (Main Menu), examine each Timber Strata definition, and provide the missing prescription information.

ERROR # @@

Regenerated stand information missing

Select the Regenerated Stand Prescriptions from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the regenerated stand Harvest Volumes by prescription had not been provided. TSPAS_DDP requires specifying at least one regenerated stand prescription - complete with Timber Strata definition, Management Intensity, Site Preparation category, regeneration category, TE default value set or Log Cost Category, stand age, Timber Species and their predicted volumes. Return to the Regenerated Stand Prescriptions screen (Main Menu) and provide the relevant prescription information for the default database area.

ERROR # @@**Regenerated stand model defaults incomplete****Select Regenerated Stand Appraisal Menu from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that at least one default value set was missing at least one default value. TSPAS_DDP uses the default values in calculating the regenerated stand model estimated value and therefore, requires providing values for each Adjustor/Variable contained in the model. Return to the Default Values screen (Regenerated Stand Appraisal menu) and provide the missing information.

ERROR # @@**Regenerated stand model defaults missing****Select Regenerated Stand Appraisal Menu from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the default values for the regenerated stand TE Model had not been provided. TSPAS_DDP uses the default values in calculating the regenerated stand model estimated value and therefore, requires providing values for each default value set defined, for each Adjustor/Variable contained in the model. Return to the Default Values screen (Regenerated Stand Appraisal menu) and provide **all** regenerated stand default values.

ERROR # @@**Regenerated stand model not developed****Select Regenerated Stand Appraisal from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that no TE Model information had been provided for the Regenerated Stand. When a TE appraisal method is selected for the Regenerated Stand (General Information screen, Main Menu), TSPAS_DDP requires developing a TE Model and providing all relevant model information. Return to the Regeneration Stand Appraisal menu and develop the TE Model relevant to the default database area. Note, TSPAS_DDP requires this model to be saved before the database can be locked.

ERROR # @@**Regenerated stand TE model not saved****Select Regenerated Stand Appraisal from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the regenerated stand TE Model present in the default database had not successfully completed the save procedure and been marked "saved." When a TE appraisal method is selected for the Regenerated Stand (General Information screen, Main Menu), TSPAS_DDP requires saving the regenerated stand model before the default database can be successfully locked. Return to the Regenerated Stand Appraisal menu and select Save Equation. If the Save procedure terminates successfully, answer "Y" to the Save question.

ERROR # @@**Regeneration costs missing****Select Costs from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Regeneration Methods and related costs had not been provided. TSPAS_DDP requires specifying at least one Regeneration Method and related cost before the default database can be successfully locked. Return to the Regeneration Costs screen (Costs menu) and provide the relevant regeneration information for the default database area.

ERROR # @@**Site preparation costs missing****Select Costs from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Site Preparation methods and related costs had not been provided. TSPAS_DDP requires specifying at least one Site Preparation method and related cost before the default database can be successfully locked. Return to the Regeneration Costs screen (Costs menu) and provide the relevant Site Preparation information for the default database area.

ERROR # @@**Skidding and loading costs missing****Select Costs from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Skidding and Loading Costs had not been provided. When Residual Value is selected for the Existing Stand and/or the Regenerated Stand (General Information screen, Main Menu), TSPAS_DDP requires specifying the Skidding and Loading Costs for each Logging Method, for each Log Cost Category. Return to the Skidding and Loading Costs screen (Costs menu) and provide the missing cost information.

ERROR # @@**Species-specific default values incomplete****Select Regenerated Stand Appraisal Menu from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that at least one species default value for at least one species-specific Adjustor/Variable had not been provided. TSPAS_DDP uses the default values in calculating the regenerated stand model estimated value and therefore, requires providing values for all the species listed, for each species-specific Adjustor/Variable contained in the model. Return to the Species-Specific Defaults screen (Regenerated Stand Appraisal menu) examine each Adjustor/Variable contained in the TE Model and provide the missing species default values.

ERROR # @@**Species-specific default values missing****Select Regenerated Stand Appraisal Menu from Main Menu**

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the species default values had not been provided for at least one species-specific Adjustor/Variable. TSPAS_DDP uses the default values in

calculating the regenerated stand model estimated value and therefore, requires providing values for all the species listed, for each species-specific Adjustor/Variable contained in the model. Return to the Species-Specific Defaults screen (Regenerated Stand Appraisal menu) select RE-MAINING to determine which Adjustor/Variable still requires default values and provide defaults for each species listed.

ERROR # @@

Stand appraisal incomplete

Select the Stand Appraisal from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the species information for some Timber Product had not been completely specified. All data requests in the lower box of the Stand Appraisal screen must be completed before the default database can be successfully locked. Return to the Stand Appraisal screen (Main Menu), examine each Timber Product, and provide the missing information.

ERROR # @@

Strata field *** not defined. (Defined strata fields must be consecutive)**

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. ***** represents "1," "2," "3," or "4." Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Timber Strata Field names skipped field *****. TSPAS_DDP requires Timber Strata Fields to be consecutive and has been designed to prevent this situation. However, on the rare chance this situation arises, correcting the problem may not be a simple task. We suggest (1) returning to the Timber Strata Field Names screen (Lists & Categories menu) and specifying a "dummy" field name for field *****; (2) returning to the Timber Strata Field Codes screen (Lists & Categories menu) and specifying one "dummy" valid code; (3) returning to the Timber Strata Definition screen (Lists & Categories menu) and specifying the new valid code in the "dummy" strata field for every Timber Strata definition; (4) returning to the Regenerated Stand Prescriptions screen and then the Nontimber Output Schedules screen, both on Main Menu, and specifying the new valid code in the dummy field for each prescription and for each nontimber output entered before.

ERROR # @@

TE default value set choice (VAL): *** in regen prscrptn data is undefined**

Select the Regenerated Stand Prescriptions from Main Menu

(@@ represents an **incremented number**. ***** represents "A," "B," "C," "D," or "E." Note, # represents number sign.) During the Verify procedure, TSPAS_DDP encountered an invalid, default value set choice, *****; given in some regenerated stand prescription. TSPAS_DDP only recognizes the TE default value set names specified on the Default Value Set Definitions screen (Regenerated Stand Appraisal menu). Return to the Regenerated Stand Prescription screen (Main Menu), examine each Timber Strata definition, and change ***** to a valid value set choice. Alternatively, return to the Default Value Set Definitions screen (Regenerated Stand Appraisal menu) and define category *****.

ERROR # @@

Timber product information (product for cost related info or regen stand) missing

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that a Timber Product had not been provided for either the cost-related data or the Regenerated Stand data. TSPAS_DDP uses the units of the Timber Product specified for the cost-related data in collecting \$/unit costs and the regenerated stand Harvest Volumes are collected with respect to the units specified for the regenerated stand Timber Product. Return to the lower box of the Timber Product Information screen (List & Categories menu) and provide the missing Timber Product(s).

ERROR # @@

Timber species missing

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Timber Species had not been provided. TSPAS_DDP requires specifying at least one Timber Species. Return to the Timber Species screen (Lists & Categories menu) and provide the relevant Timber Species for the default database area.

ERROR # @@

Timber strata codes for field # *** missing**

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. ***** represents "1," "2," "3," or "4." Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Timber Strata Field codes for field ***** had not been provided. TSPAS_DDP requires specifying at least one valid Timber Strata Field code for each active Timber Strata Field. Return to the Timber Strata Field Codes screen (Lists & Categories menu) and provide the relevant Timber Strata Field codes for Timber Strata Field *****.

ERROR # @@

Timber strata definitions incomplete. (Each strata field must contain a valid code)

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP encountered at least one Timber Strata definition missing a valid Timber Strata Field code in at least one Timber Strata Field. When defining Timber Strata, TSPAS_DDP requires specifying a valid Timber Strata Field code in each active Timber Strata Field. Return to the Timber Strata Definitions screen (Lists & Categories menu) and provide the missing information.

ERROR # @@

Timber strata definitions missing

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Timber Strata definitions had not been provided. TSPAS_DDP requires

specifying at least one regenerated stand prescription which requires providing at least one Timber Strata definition. Return to the Timber Strata Definitions screen (Lists & Categories menu) and build the relevant Timber Strata definitions for the default database area.

ERROR # @@

Timber strata field names missing

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Timber Strata Field names had not been provided. TSPAS_DDP requires specifying at least one regenerated stand prescription which requires providing a Timber Strata definition, thus Timber Strata Field names. Return to the Timber Strata Field Names screen (Lists & Categories menu) and name at least one Timber Strata Field. Note, TSPAS_DDP requires Timber Strata Fields to be consecutive.

ERROR # @@

Timber products incomplete

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that a Timber Product's units, Minimum Deposit to Treasury, Average Stumpage Price or cubic-foot multiplier had not been provided for at least one Timber Product. All Timber Product information, for each Timber Product defined, must be specified before the default database can be successfully locked. Return to the Timber Product Information screen (Lists & Categories menu) and provide the missing information.

ERROR # @@

Timber products missing

Select Lists and Categories from Main Menu

(@@ represents an **incremented number**. Note, # represents number sign.) During the Verify procedure, TSPAS_DDP determined that the Timber Products had not been provided. TSPAS_DDP requires specifying at least one Timber Product (and related information) before the default database can be successfully locked. Return to the Timber Products screen (Lists & Categories menu) and provide the relevant Timber Products for the default database area.

Entry must be between 1 & #

(# represents a **number**.) Specifying a choice with some character other than a number between 1 and #. Valid choices are numbers between 1 and #, inclusively.

Entry must be between 1 and #. Re-enter menu choice

(# represents a **number**.) Specifying a menu choice with some character other than a number between 1 and #. Valid choices are numbers between 1 and #, inclusively.

Entry must be "T" or "Y"

Specifying a USFS cost category BASIS using a character other than "T" or "Y." (Specifying a "T" indicates the USFS cost category applies to the total sale Harvest Volume, whereas, a "Y" indicates the cost applies to the harvest yield for the year(s) specified in TSPAS_SP.) TSPAS_DDP will only accept "T," "t," "Y," or "y."

Entry must be "Y" or "N." Re-enter choice

Answering a question with some response other than "Y" or "N."
TSPAS_DDP will accept only "Y," "y," "N," or "n."

Error on *****

(***** represents the **export filename**.) During the export procedure, TSPAS_DDP encountered more than 900 saved TE Models attempting to be exported with this default database. TSPAS_DDP has been designed to limit the number of developed TE Models (over ALL default databases) to 900. This error should never occur. However, on the rare chance it does occur, remove at least one TE Model from the default database before attempting to export the database.

Error after table *** in tim_export**

(***** represents "tspas_environment," "tspas_mngr_id," "tspas_cost_changes_misc," "tspas_dim_id_labels," "tspas_fell_buck," "tspas_log_meth_labels," "tspas_mgt_int_desc," "tspas_misc_desc," "tspas_msic_values," "tspas_nontmbr_output," "tspas_nt_out_by_acre," "tspas_pot_sale_req," "tspas_prep_regen_cost," "tspas_prod_by_species," "tspas_regen_vol_removed," "tspas_skid_load," "tspas_species_group," "tspas_strata_combo," "tspas_strata_field_desc," "tspas_strata_field_codes," "tspas_strata_specgrp," "tspas_tmbr_prod," "tspas_ddp_usfs_cost," "eqncnt," "tspas_sute_name_id," "tspas_tmbr_prod," "tspas_prod_by_spceies," "tspas_species_group," "tspas_sute_constants," "tspas_sute_cost_cat," "tspas_sute_eqn_var," "tspas_sute_b," "tspas_sute_regen_defaults," "tspas_sute_regen_labels," "tspas_sute_spec," "tspas_sute_spec_&_group," "tspas_species_group," "tspas_sute_spec," "tspas_sute_stack.")

During the export procedure TSPAS_DDP encountered an ORACLE SQL error which terminated the export. TSPAS_DDP has been designed to prevent this sort of ORACLE error and the user should never need to correct this problem. However, on the rare chance this error occurs, it, most likely, involves the structure of the ORACLE database itself.

Existing stand *** not developed. Select menu item (3)**

(***** represents "**adjustment set**" or "**equation**.") Initiating the Save procedure on the Existing Stand Appraisal menu, before specifying the TE Model. A TE Model must contain at least the average or intercept, as appropriate. Select Adjustment Set Information or Regression Variable Information, as appropriate, and build the TE Model before attempting the Save procedure.

Existing stand *** successfully saved**

(***** represents "**adjustment set**" or "**equation**.") Message indicating that TSPAS_DDP successfully completed all data checks on the existing stand TE Model, *****, and has marked the model "saved."

Existing stand general information incomplete. Select menu item (1)

During the existing stand model Save procedure, TSPAS_DDP found information missing from the TE General Information screen. All data requests on the TE General Information screen must be completed before TSPAS_DDP can save the model.

Export data written to *****

(***** represents a **Data General IS/CLI file name**.) TSPAS_DDP successfully completed the export procedure. This message indicates the exported default database or TE Model resides in the IS/CLI file ***** and can now be manipulated as other IS/CLI files.

Exporting more than 900 TE models in database export

During the database export procedure, TSPAS_DDP determined that the database included more than the maximum of 900 TE models. Delete one or more TE models from the database to correct the problem.

Field is protected against update

Attempting to alter a saved category name. Once saved, TSPAS_DDP prohibits altering the name itself. Preventing name alterations protects the data integrity of the default database. Saved category names can only be changed by deleting the row and re-entering the information. Note, however, that any data associated with the name will also be deleted and require re-entering. Note also, category names entered, but not yet saved can still be altered.

Field must be *****

(***** represents “**entered**” or “**completed**.”) Attempting to leave a field without specifying the requested information. Data must be provided before TSPAS_DDP can continue.

Function is not available

The function key selected is not available in the current version of TSPAS_DDP.

Function is not available. Background information must be completed

Attempting to remove the background default value for this nontimber output schedule. TSPAS_DDP requires supplying a background quantity for the nontimber output specified, even when the value is zero (0.0).

Function is not available. Select EXECUTE (F1) or CANCEL/EXIT (F11)

Specifying a function which cannot be used in the current context or environment, or in the current location. The function may be valid in other screens, or in other parts of this screen. TSPAS_DDP only accepts EXECUTE or CANCEL/EXIT at this location.

Function is not available. Timber product information must be completed

Attempting to delete a Timber Product from the Timber Product Information screen. Data must be provided for each Timber Product listed. Products can only be deleted from the Timber Product screen (Lists & Categories menu).

Function not available. NEWLINE processes field; CANCEL/EXIT returns to TE menu

Attempting to EXECUTE on Regression Variable Information screen or Adjustment Set Information screen (Existing Stand Appraisal menu or Regenerated Stand menu). The EXECUTE function is not available on this screen. Component information is processed by pressing NEWLINE on a blank line or the last line. CANCEL/EXIT returns processing to the TE model menu.

Function not currently valid

Specifying a function key which cannot be used in the current context or environment, or in the current location. The function may be valid in other screens, or in other parts of this screen.

“INTERCEPT” is a reserved word. Re-enter or select DELETE RECORD (F9)

Specifying “INTERCEPT” as an Adjustor/Variable name. TSPAS_DDP reserves “INTERCEPT” for use in TE Model components. Alter or delete this record.

“IMPORT” is reserved for the TSPAS_DDP export file

Specifying a new TE Model as “IMPORT.” TSPAS_DDP reserves “IMPORT” for naming default database or TE Model export files.

Invalid character found. Valid characters: a-z A-Z 0-9 \$ _ . ? space

Specifying a new default database or TE Model name using an undefined character. TSPAS_DDP, at times, creates IS/CLI files using the default database name and/or the TE Model name, and therefore can only permit characters acceptable for IS/CLI file names. TSPAS_DDP will accept the following characters: lower-case letters (a-z), upper-case letters (A-Z), numerical digits (0-9), dollar sign (\$), underscore (_), period (.), and question mark (?).

Invalid character found: *

(* represents a **character**.) While processing a default database name, a TE Model name or a TE Model component, TSPAS_DDP encountered an undefined character, *. Before a new default database or TE Model is created through the copy procedure, TSPAS_DDP examines the destination name provided. TSPAS_DDP accepts characters which are valid in naming IS/CLI files: lower-case letters (a-z), upper-case letters (A-Z), numerical digits (0-9), dollar sign (\$), underscore (_), period (.), and question mark (?). If the error was issued while processing a TE component, TSPAS_DDP encountered a left-angle bracket (<), a right-angle bracket (>), or an equals (=). TSPAS_DDP cannot process any of these characters and cannot continue until the component is altered.

Invalid character(s) being read as a constant: *****

(***** represents a **string of characters**.) While processing a TE Model component, TSPAS_DDP encountered an invalid, numerical constant. The character string, *****, begins with a numerical digit, but contains one or more alphabetical or undefined characters. Character string must be altered before TSPAS_DDP can continue.

Invalid @@@@. ***. Re-enter or select DELETE RECORD (F9)**

(@@@@ represents “cost adjustment,” “default value set,” “log cost category,” “logging method,” “management intensity,” “nontimber output,” “pot sale req,” “regen category,” “site prep category,” “stand mngmnt cat,” “timber product,” “timber species,” “timber strata definition,” “timber strata field code,” “USFS cost category.” Note, ***** represents itself.) Attempting to define category @@@@ with stars (*****). TSPAS_DDP prohibits specifying a field of stars as a valid category. Note, this situation may arise unintentionally after TSPAS_DDP detects duplicate information and changes it to stars (*****). TSPAS_DDP issues this error when EXECUTE is selected before the duplicate information is addressed.

Last row of query retrieved

(Warning generated by ORACLE.) TSPAS_DDP has retrieved the last row from the database pertaining to the particular screen.

“LOG” is a reserved word. Re-enter or select DELETE RECORD (F9)

Specifying “LOG” as an Adjustor/Variable name. TSPAS_DDP reserves “LOG” for the logarithmic base 10 mathematical operator. Alter or delete this record.

LOG, SITE and REG must all be completed

While saving regenerated stand prescription information, TSPAS_DDP encountered an incomplete timber harvest entry. When a timber harvest activity is specified, TSPAS_DDP requires that choices appear in each of the LOG, SITE, and REG fields.

Logging cost categories missing. Complete Log Cost Cat on List & Cats Menu

Attempting to access either a cost screen from the Cost menu or the Regenerated Stand Prescription screen before specifying logging cost categories. A Logging Cost Category, among other information, must be provided for each Regenerated Stand timber harvest activity specified. Return to the Logging Cost Categories screen (Lists & Categories menu) and specify the relevant log cost categories for the default database area.

Logging cost category title must be completed

Attempting to leave the Logging Cost Category title field without providing a title. This title describes how the logging costs are categorized and appears as a label on the Felling & Bucking and Skidding & Loading cost screens.

Logging methods missing. Complete Logging Methods on List & Cats Menu

Attempting to access either the Felling & Bucking Cost screen or the Skidding & Loading Cost screen before specifying the Logging Methods. TSPAS_DDP requires providing at least one Logging Method prior to entering RV cost information. Return to the Logging Costs Categories screen (Lists & Categories menu) and specify the relevant Logging Methods for the default database area.

“LN” is a reserved word. Re-enter or select DELETE RECORD (F9)

Specifying “LN” as an Adjustor/Variable name. TSPAS_DDP reserves “LN” for the natural logarithmic mathematical operator. Alter or delete this record.

Management intensity missing. Complete Mngmt Int Def'n on List & Cats Menu

Attempting to access the Regenerated Stand Prescription screen before specifying Management Intensity definitions. TSPAS_DDP cannot collect regenerated stand prescription information until at least one Management Intensity has been defined. Return to the Management Intensity Definitions screen (Lists & Categories menu) and specify the relevant Management Intensity codes.

Model not adjusting-averages

Specifying a TE Model which is defined as an equation-based model, not an adjusting-averages model. TSPAS_DDP cannot access this model

until the existing stand appraisal method on the General Information screen (Main Menu) is switched from adjusting-averages to equation-based.

Model not equation-based

Specifying a TE Model which is defined as an adjusting-averages model, not an equation-based model. TSPAS_DDP cannot access this model until the Existing Stand appraisal method on the General Information screen (Main Menu) is switched from equation-based to adjusting-averages.

More left-side brackets than right-side brackets. (Brackets mismatched)

While processing a TE Model component, TSPAS_DDP encountered more left-side brackets than right-side brackets. TSPAS_DDP cannot "read" the mathematical expression when brackets are mismatched.

More right-side brackets than left-side brackets. (Brackets mismatched.)

While processing a TE Model component, TSPAS_DDP encountered more right-side brackets than left-side brackets. TSPAS_DDP cannot "read" the mathematical expression when brackets are mismatched.

Must be in range ## to @@

(## and @@ represent numbers.) Specifying a value which violates the bounds placed on the data request field. In this field, TSPAS_DDP restricts the value to between ## and @@, inclusive. TSPAS_DDP cannot continue until the value is altered.

New *** exceeds the maximum of #**

(***** represents "adjustor," "cost adjustment," "Default Database," "management intensity," "nontimber output decade," "potential sale requirement," "regenerated stand prescription," "regeneration category," "site preparation category," "species-specific adjustor listed in component," "species-specific variable listed in component," "stand management category," "TE model," "timber strata definition," "USFS cost category," and "variable," and # represents a number.) While saving the ***** categories, TSPAS_DDP detected more than the maximum of # categories. TSPAS_DDP will only accept a total of # categories. Use DELETE RECORD to remove excess records or CANCEL/EXIT to leave the screen.

No *** in the regenerated stand @@@@ require default values**
(***** represents "adjustors" or "variables," @@@@ represents "adjustment set" or "equation.") Attempting to specify default values for the regenerated stand *****. TSPAS_DDP denies access to the Default Value screen because this regenerated stand model either does not contain any ***** at all, or the ***** it does contain are species-specific or "system" *****. In any case, default values cannot be entered. Note, TSPAS_DDP requires providing at least one default value set name under all circumstances.

No component accompanied the current ***. Enter component**

(***** represent "adjustment" or "beta coefficient.") Attempting to process a TE Model component consisting of a non-zero ***** and a blank component. TSPAS_DDP will not process a blank component, therefore, either enter a component or delete the *****.

No Default Database active. Switch to another database or Quick-Off (CTRL-S-F1)

Attempting to leave the Utility menu after deleting the currently active default database. TSPAS_DDP cannot proceed until another default database is activated. Either switch to another database using the Utility menu option or select QUICK-OFF.

No nontimber outputs defined. Cannot access nontimber ***.**

(***** represent "Output Info screen," "Output Schedules screen," or "price and cost changes.") Attempting to access additional nontimber output information. TSPAS_DDP denies access to this screen because the database does not contain any Nontimber outputs. TSPAS_DDP prohibits specifying nontimber output information until a nontimber output is defined.

No REMAINING ***. Select INDEX (S-F2) for list**

(***** represents "nontimber outputs," "species-specific adjustors," "species-specific variables," "strata-mngt intensity combos," "timber products," "timber species," "timber strata definitions," or "timber strata combos.") Attempting to access the REMAINING list of *****, when data for all ***** has been specified. There are no ***** still requiring information from this screen. INDEX provides a complete list of *****.

No species-specific *** to list for this @@@@**

(***** represents "adjustors" or "variables" and @@@@ represents "adjustment set" or "equation.") Attempting to access the INDEX list of species-specific Adjustors or Variables included in this TE Model. However, TSPAS_DDP cannot provide the INDEX list because there are no species-specific Adjustors/Variables contained in the current TE Model.

No TE *** for this Default Database**

(***** represents "adjustment sets" or "equations.") Attempting to access the INDEX list of the existing stand TE ***** included in this default database. However, TSPAS_DDP cannot provide the INDEX list because no existing stand TE Models have been built.

No TE model components to delete

Attempting to remove a component from a TE model having only the average/intercept listed. Cannot access the Delete Component screen.

Nontimber output not defined. Re-enter, select INDEX (S-F2) or REM (S-F6)

Attempting to specify a nontimber output code which is not valid. TSPAS_DDP only recognizes the Nontimber Outputs defined on the Nontimber Output Code screen (Lists & Categories menu). INDEX lists all valid output codes, and REMAINING lists Nontimber Outputs still requiring this information.

Not enough arguments accompanying operator: @

(@ represents "+," "-", "/", "*", "**," "LN," or "LOG.") While processing a TE Model component, TSPAS_DDP encountered the mathematical operator @ which is missing at least one operand. The component either begins or ends with the mathematical operator, and there is no accompanying Adjustor, Variable, or constant with which to apply the operator. (For example, multiplication requires two arguments or operands and one or both of the arguments are missing.)

Only the last timber strata field defined can be deleted

Attempting to remove a Timber Strata Field from the Timber Strata Field Name screen. TSPAS_DDP requires active Timber Strata Fields to be consecutive and removing any field but the last creates a "hole." Therefore, TSPAS_DDP will only delete the last active strata field defined, and then only after all valid codes have been deleted.

Operator missing before the left-side bracket: @

(* represents brackets: "(", "[", or "{") While processing a TE Model component, TSPAS_DDP encountered the left bracket @ immediately after an Adjustor, Variable or constant. TSPAS_DDP expects a mathematical operator between an Adjustor, a Variable or a constant, and brackets. The component must be altered before TSPAS_DDP can continue.

Operator missing between 2 terms in component

While processing a TE Model component, TSPAS_DDP encountered two Adjustors, Variables or constants without a mathematical operator between them. TSPAS_DDP expects one of the valid operators (+, -, *, /, **) between Adjustors/Variables or constants. The component must be altered before TSPAS_DDP can continue.

Option not valid. Valid options listed in help box above

Attempting to specify a regenerated stand prescription category using an invalid character. For each prescription category (Management Intensity, stand management, Logging Cost Category, Site Preparation, Regeneration Method and TE Model default value set), TSPAS_DDP lists the valid options available in the lower portion HELP box.

PAGE DOWN (C4) to move to lower box

Attempting to move to the lower box of a two box screen. Select PAGE DOWN (C4 on a DG terminal, and PAGE DOWN on a PC) to move to the lower box.

Press EXECUTE (F1) to save *** or CANCEL/EXIT (F11)**

(***** represents "Cost And Bid Adjustments," "Default values," "Default Value Set Definitions," "Felling And Bucking Costs," "Forest-wide Average Costs," "General Inflation Rates," "General Information," "Logging Methods," "Management Intensity Descs," "Manufacturing Costs," "Miscellaneous Costs and Prices," "Nontimber Output Information," "Nontimber Output Values," "Skidding And Loading Costs," "Species-Specific Defaults," "Stand Appraisal," "TE General Information," "Timber Product Information," "Timber Product Prices," "Timber Strata Field Dscrptns.") All data requests in the screen have been completed. With a NEWLINE on the last field, TSPAS_DDP issues this HELP statement and either keeps the cursor in the current position or moves it back to the first data request field. EXECUTE saves information while CANCEL/EXIT exits the screen without saving information.

Query caused no records to be retrieved

(Warning generated by ORACLE.) When entering a screen, TSPAS_DDP collects and displays all the data that have been entered thus far for this screen. When no information has been saved, ORACLE warns that TSPAS_DDP did not retrieve any data.

Regen stand default value set definitions missing. Select menu item (5)

Either attempting to access the Default Value screen or initiate the Save procedure before specifying default value set definitions. Default value sets must be provided for any regenerated stand model, even those only containing a model intercept or a model average. Return to the Default Value Set Definitions screen (Regenerated Stand Appraisal menu) and specify the relevant default value sets for the regenerated stand TE Model.

Regen stand prescriptions (Main Menu) need updating with a new regen model

Before deleting the regenerated stand model, TSPAS_DDP warns that the regenerated stand prescriptions were built based on the current model. These prescriptions may no longer be valid with a new model. After a new model is developed, examine the Regenerated Stand Prescriptions screen (Main Menu) to ensure the TE default value set selections are still valid.

Regen stand timber prod missing. Complete Tmbr Prod Info on List & Cats Menu

Attempting to access the Regenerated Stand Prescription screen before specifying a Regenerated Stand product. TSPAS_DDP cannot collect regenerated stand prescription information until this product has been provided. Return to the Timber Product Information screen (List & Categories menu) and specify a Regenerated Stand product in the lower box.

"REGEN STD" reserved for the Regenerated Stand

Attempting to specify "REGEN STD" as a TE Model name. TSPAS_DDP reserves "REGEN STD" for the regenerated stand TE Model. Alter model name.

Regen stnd model deflt sets missing. Complete Regen Stnd Appr'l on Main Menu

Attempting to access the Regenerated Stand Prescription screen before specifying the default value set definitions for the regenerated stand TE Model. Each Regenerated Stand harvest entry prescription requests a TE Model default value set selection. Return to the Default Value Set Definitions screen (Regenerated Stand Appraisal menu) and specify the relevant default value sets for the regenerated stand TE Model.

Regenerated stand *** not developed. Select menu item (3)**

(***** represents "adjustment set" or "equation.") Initiating the Save procedure on the Regenerated Stand Appraisal menu before specifying the TE Model. A regenerated stand TE Model must contain at least the average or intercept, as appropriate. Return to the Adjustment Set Information screen or the Regression Variable Information screen, as appropriate, and build the TE Model before attempting the Save procedure.

Regenerated stand *** successfully saved**

(***** represents "adjustment set" or "equation.") Message indicating that TSPAS_DDP successfully completed all data checks for the regenerated stand TE Model and has marked the model "saved."

Regenerated stand default values incomplete. Select menu item (6)
During the regenerated stand model Save procedure, TSPAS_DDP found incomplete default value information. Default values must be provided for each Adjustor/Variable listed and for each value set definition defined. Return to the Default Values screen (Regenerated Stand Appraisal menu) and complete all data requests.

Regenerated stand general information incomplete. Select menu item (1)
During the regenerated stand model Save procedure, TSPAS_DDP found information missing from the TE General Information screen. All data requests on the TE General Information screen (Regenerated Stand Appraisal menu) must be completed before TSPAS_DDP can save the model.

Regenerated stand prescription list of species saved
TSPAS_DDP warns that the species listed for the specified prescription have automatically been saved to the default database. TSPAS_DDP saves any changes to the Timber Species on the Regenerated Stand Prescription screen as the cursor moves to the Harvest Volume portion of the box. This intermediate save provides cursor control in the lower section. Note, issuing a CANCEL/EXIT will NOT revert the saved species changes.

Regeneration methods missing. Complete Regeneration Costs on Costs Menu
Attempting to access the Regenerated Stand Prescription screen before specifying Regeneration Methods. TSPAS_DDP cannot collect regenerated stand prescription information until at least one Regeneration Method has been provided. Return to the Regeneration Costs screen (Costs menu) and specify the relevant Regeneration Methods.

Saved management intensity cannot be updated. Cannot select from INDEX
Attempting to select from the INDEX list a management intensity code for a previously saved prescription. Once saved, TSPAS_DDP prohibits altering the management intensity code. Preventing code alterations protects the data integrity of the default database. Management intensity codes can only be changed by deleting the prescription row and re-entering the information. Note that codes entered, but not yet saved, can still be altered.

Saved tmbr strata definitn cannot be updated. Cannot select from INDEX
Attempting to select from the INDEX list a strata field code for a previously saved timber strata. Once saved, TSPAS_DDP prohibits altering the timber strata. Preventing alterations protects the data integrity of the default database. Timber strata can only be changed by deleting the row and re-entering the information. Note, however, that any data associated with the strata will also be deleted and require re-entering. Note that strata field codes entered, but not yet saved, can still be altered.

Site preparation methods missing. Complete Site Prep Costs on Costs Menu

Attempting to access the Regenerated Stand Prescription screen before specifying Site Preparation methods. TSPAS_DDP cannot collect regenerated stand prescription information until at least one Site Preparation method has been provided. Return to the Site Preparation Costs screen (Costs menu) and specify the relevant Site Preparation methods for the default database area.

Species for equation product missing. Complete Gen'l App'l Info on Main Menu

During the Save procedure, TSPAS_DDP detected missing species information for the Timber Product specified on the TE General Information screen. TSPAS_DDP requires providing all associated information for the product specified, before the TE Model can be saved. Either select a different Timber Product or select CANCEL/EXIT, return to the General Appraisal Information screen (Main Menu) and complete species information for the product specified.

Species missing for this tmb prod. Complete Gen'l Appr'l Info on Main Menu

Attempting to specify Timber Species information related to the Timber Product provided. However, the Timber Species codes associated with this Timber Product have not yet been provided. Return to the General Appraisal Information screen (Main Menu) and specify the Timber Species codes associated with each product, by Timber Product.

Specs for adjstmnt set prod missing. Complete Gen'l App'l Info on Main Menu

During the Save procedure, TSPAS_DDP detected missing Timber Species information for the product specified on the TE General Information screen. TSPAS_DDP requires providing all associated information for the product specified, before the TE Model can be saved. Either specify a different Timber Product or select CANCEL/EXIT, return to the General Appraisal Information screen (Main Menu) and complete species information for the Timber Product specified.

STAND AGE must be completed

Attempting to leave the decadal stand age field on the Regenerated Stand Prescription screen without providing a value. TSPAS_DDP requires a stand age value for every prescription activity.

Stand age must be at least decade 1. Re-enter or select DELETE RECORD (F9)

Attempting to specify a decadal stand age less than 1 on the Regenerated Stand Prescription screen. Regenerated stand prescription activities cannot be scheduled any earlier than decade 1. Re-enter the decadal stand age or select DELETE RECORD to delete the entire activity.

Strata code in field # not defined. Re-enter, or select INDEX(S-F2) (# represents "1," "2," "3," or "4.") Specifying a Timber Strata Field code which is not valid in the current strata field. TSPAS_DDP only recognizes Timber Strata Field codes specified on the Timber Strata Field Codes screen (Lists & Categories menu) for this field. INDEX lists this field's valid Timber Strata Field codes.

Strata definition incomplete. Complete strata or select DELETE RECORD (F9)

Attempting to save a strata definition without providing a valid Timber Strata Field code for each active field. TSPAS_DDP requires completely specifying Timber Strata definitions before the information can be saved. INDEX in each Timber Strata Field provides the field's valid Timber Strata Field codes.

Strata definitions missing. Complete Tmbr Strata Defns on List & Cats Menu

Attempting to access the Regenerated Stand Prescription screen before specifying the Timber Strata definitions. TSPAS_DDP cannot collect regenerated stand prescription information until Timber Strata definitions are provided. Return to the Timber Strata Definitions screen (Lists & Categories menu) and specify relevant Timber Strata definitions for the default database area.

Strata-mngt int not defined. Re-enter, select INDEX (S-F2) or REM (S-F6)

Specifying a timber strata/management intensity combination which is not valid. TSPAS_DDP only recognizes the timber strata/management intensity combinations specified on the Regenerated Stand Prescription screen (Main Menu). INDEX lists all valid combinations and REMAINING lists the combinations still requiring nontimber output information.

Stumpage price missing for product. Complete Tmbr Prod Info on List & Cats Menu

Specifying a TE Model Timber Product which is missing stumpage price information. TSPAS_DDP requires providing all Timber Product information before the product can be specified on the TE General Information screen. Either specify a different Timber Product or select CANCEL/EXIT, return to the Timber Product Information screen (Lists and Categories menu) and complete all data requests.

TE *** name must be completed**

(***** represents "adjustment set" or "equation.") Attempting to leave the TE Model name field without providing either an adjustment set or an equation name, as appropriate. TSPAS_DDP cannot continue until this name has been provided.

Timber product for cost-related information must be completed

Attempting to save the Timber Product Information screen without specifying a product for cost-related information in the lower box. TSPAS_DDP requires completing all data requests on the Timber Product Information screen before saving the information.

Timber product for regenerated stand yield data must be completed

Attempting to save the Timber Product Information screen without specifying a product for the Regenerated Stand yield data in the lower box. TSPAS_DDP requires completing all data requests on the Timber Product Information screen before saving the information.

Timber product info incomplete. Complete Tmbr Prod Info on List & Cats Menu

Specifying a TE Model Timber Product which is missing information. TSPAS_DDP requires providing all Timber Product information before a product can be chosen on the TE General Information screen. Either select a different Timber Product or select CANCEL/EXIT, return to the Timber Product Information screen (Lists & Categories menu) and complete all data requests.

Timber product information must be completed

Attempting to leave the top box on the Timber Product Information screen without specifying all Timber Product information. All data requests on the Timber Product Information screen must be completed before TSPAS_DDP can continue.

Timber product must be completed

Attempting to save the TE General Information screen without specifying the Timber Product. All data requests on this screen must be completed before TSPAS_DDP can save the information.

Timber product not defined. Re-enter or select INDEX (S-F2) for list

Specifying a Timber Product which is not valid. TSPAS_DDP only recognizes the Timber Products specified on the Timber Product Codes screen (Lists & Categories menu). INDEX lists all valid Timber Products.

Timber product not defined. Re-enter, select INDEX (S-F2) or REMAIN (S-F6)

Specifying a Timber Product which is not valid. TSPAS_DDP only recognizes Timber Products specified on the Timber Product Codes screen (Lists & Categories menu). INDEX lists all valid Timber Products and REMAINING lists the products still requiring this information.

Timber products missing. Complete Timber Products on List & Cats Menu

Attempting to access a TSPAS_DDP screen requiring Timber Product(s) to be specified before defining Timber Products. TSPAS_DDP cannot collect Timber Product information until products are provided. Return to the Timber Product Codes screen (Lists & Categories menu) and specify the relevant Timber Products for the default database area.

Timber species in column # not defined. Re-enter or select INDEX (S-F2)

(# represents "1," "2," "3," "4," or "5.") Specifying a Timber Species in column # of the Regenerated Stand Prescription screen which is not valid. TSPAS_DDP only recognizes species codes specified Timber Species Codes screen (Lists & Categories menu). INDEX lists all valid Timber Species codes.

Timber species missing. Complete Timber Species on List & Cats Menu

Attempting to access the Regenerated Stand Prescription screen, the Species-Specific Defaults screen, or the Timber Product Prices screen before specifying Timber Species codes. TSPAS_DDP cannot collect any species-related information until species have been provided. Return to the Timber Species screen (List & Categories menu) and specify the relevant Timber Species for the default database area.

Timber species must be completed

Attempting to enter the Harvest Volume portion of the regenerated stand prescription screen before specifying at least one species. Regenerated stand prescriptions may contain as many stand management treatments as necessary, but are required to contain at least one harvest entry. Therefore, TSPAS_DDP requires specifying at least one species, before moving to the volume portion of the screen. INDEX lists valid species available.

Timber species not defined. Re-enter or select INDEX (S-F2) for list

Specifying a Timber Species code which is not valid. TSPAS_DDP only recognizes the species codes specified on the Timber Species Codes screen (Lists & Categories menu). INDEX lists all valid Timber Species codes.

Timber species not defined. Re-enter, select INDEX (S-F2) or REMAIN (S-F6)

Specifying a Timber Species code which is not valid. TSPAS_DDP only recognizes the species codes specified on the Timber Species Codes screen (Lists & Categories menu). INDEX lists all valid Timber Species codes and REMAINING lists the species still requiring this information.

Timber strata definitions need to be updated with the add'l strata field

Whenever a new strata field is activated after Timber Strata definitions have been defined, TSPAS_DDP warns the user of other implications. The existing Timber Strata definitions are now invalid and need updating. After Timber Strata Field codes are provided for the new field, continue to the Timber Strata Definitions screen (Lists & Categories menu) and alter all previously entered definitions. Note, regenerated stand prescriptions and nontimber output information may be affected by this change.

Timber strata field name must be completed

Attempting to leave a Timber Strata Field name without providing a name. TSPAS_DDP requires active Timber Strata Fields to be consecutive, and therefore prohibits skipping a strata field name.

Timber strata field name not defined. Re-enter, or select INDEX (S-F2)

Attempting to specify a Timber Strata Field name which is not valid. TSPAS_DDP only recognizes the strata field names specified on the Timber Strata Field Names screen (List & Categories menu). INDEX lists all defined Timber Strata Field names.

Timber strata field names missing. Complete Timber Strata Field Names

Attempting to access the Timber Strata Codes screen before defining the active Timber Strata Fields. TSPAS_DDP cannot collect any Timber Strata information until the strata field names have been provided. Return to the Timber Strata Field Names screen (List & Categories menu) and provide a name for each active Timber Strata Field.

Tmb strata definition not defined. Re-enter, select INDEX (S-F2) or REM (S-F6)

Specifying a combination of strata field codes which is not valid.

TSPAS_DDP only recognizes the Timber Strata definitions specified on the Timber Strata Definitions screen (Lists & Categories menu). INDEX lists all valid strata definitions and REMAINING lists the strata definitions still requiring this information.

"TOTAC" is a reserved word. Re-enter or select DELETE RECORD (F9)

Attempting to specify "TOTAC" as a new Adjustor/Variable name.

TSPAS_DDP has already created an Adjustor/Variable named "TOTAC." This Adjustor/Variable signals TSPAS_SP to automatically total the number of acres across the Cutting Units in a Sale Alternative—the TSPAS_SP user does not enter a value directly.

"TOTVOL" is a reserved word. Re-enter or select DELETE RECORD (F9)

Attempting to specify "TOTVOL" as a new Adjustor/Variable name.

TSPAS_DDP has already created an Adjustor/Variable named "TOTVOL." This Adjustor/Variable signals TSPAS_SP to automatically total Harvest Volume across the Cutting Units in a Sale Alternative—the TSPAS_SP user does not enter a value directly.

Undefined function key. Press ESCape k for list of valid keys

(Message generated by ORACLE.) Attempting to use a function key which is not recognized by ORACLE or TSPAS_DDP. Selecting ESC K will display a list of valid ORACLE function keys. However, TSPAS_DDP does not operate using the function keys displayed on this list.

Units missing for product. Complete Tmbr Prod Info on List & Cats Menu

Specifying a TE Model Timber Product which is missing units information. TSPAS_DDP requires providing all Timber Product information before the product can be specified on the TE General Information screen. Either select a different Timber Product or select CANCEL/EXIT, return to the Timber Product Information screen (Lists & Categories menu) and complete all data requests.

USFS cost in \$/acre or \$/unit must be completed

Attempting to save the USFS Costs for the Current Harvest Entry screen without providing the cost for at least one USFS category listed. TSPAS_DDP requires a value for each USFS cost category defined. The value may be specified as a \$/acre or a \$/unit cost, but not both. All data requests on this screen must be completed before TSPAS_DDP can save the USFS cost information.

VAL, SITE and REG must all be completed

While saving the regenerated stand prescription information, TSPAS_DDP encountered an incomplete timber harvest entry. When a timber harvest activity is specified, TSPAS_DDP requires choosing a valid category in each of the VAL, SITE, and REG fields. All data requests must be completed before TSPAS_DDP can save the regenerated stand prescription information.

Variable name: "***" not defined**

(***** represents a **Variable name**) Specifying the Variable, *****, in the appraisal information which is not valid. TSPAS_DDP only recognizes Variables specified on the Variable Codes and Type—Master List screen (Existing Stand Appraisal menu or Regenerated Stand Appraisal menu). INDEX lists all valid Variable names.

Variable not defined. Re-enter, select INDEX (S-F2) or REMAINING (S-F6)

Specifying a Variable name for the species-specific information which is not valid. TSPAS_DDP only recognizes Variables specified on the Variable Codes and Type—Master List screen (Existing Stand Appraisal menu or Regenerated Stand Appraisal menu). INDEX lists the species-specific Variables included in the current TE equation and REMAINING lists only the species-specific Variables requiring this information.

Variable not species-specific. Re-enter, select INDEX (S-F2) or REM (S-F6)

Specifying a Variable which has been defined, but was not specified as a species-specific (Type 1) Variable. Variable names are defined on the Variable Codes and Type—Master List screen, (Existing stand Appraisal menu or Regenerated Stand Appraisal menu). INDEX lists the species-specific Variables included in the current TE equation and REMAINING lists only the species-specific Variables included in the TE Model still requiring this information.

Variables cannot begin with numerical digits

Attempting to name a Variable using a numerical digit (0 - 9) in the first character. A Variable name can only begin with a letter (a - z, or A - Z) or a non-mathematical symbol (i.e. "!", "@", "#", "\$", "%," etc).

Variables cannot contain ***. Re-enter or select DELETE RCD (F9)**

(***** represents "**embedded spaces**" or "**mathematical symbols.**") Specifying a Variable name which contains an undefined symbol. TSPAS_DDP will not accept a Variable name containing an embedded space(s) or any of the following mathematical symbols: plus (+), minus (−), multiply (*), divide (/), less than (<), greater than (>), equal sign (=), or any bracket: "(", ")", "[", "]", "{", "}".

Volume under this timber species column will be set to 0

Removing a species from a regenerated stand prescription species list after volume has been entered for the species. When a species is removed from this list, TSPAS_DDP also removes all of the volume associated with the species in this prescription. TSPAS_DDP warns the user of the situation.

WARNING: *** not listed in current @@@@**

(***** represents "**Adjustor**" or "**Variable**," and @@@@ represents "**adjustment set**" or "**equation.**") Specifying an Adjustor/Variable which exists and is defined as species-specific, Type 1, but was not included in the TE Model. TSPAS_DDP permits entering species-specific information for TE Adjustor/Variable provided, but warns that the information will not be used given the current TE Model.

WARNING: Cost-related tmbr product changed. Adjust cost-related data

Some cost information entered from the Cost menu is expressed in dollars per unit of the Timber Product specified here. The product and/or units have changed, the associated cost information may no longer be valid. TSPAS_DDP warns of this possibility. If the Timber Product selected for the cost-related information is changed, then the costs expressed in dollars per unit of timber may also need to be changed.

WARNING: Cost-related tmbr product units changed. Adjust Cost-related data

The units of measure have been changed for the timber product selected for the cost-related information. Any costs expressed in dollars per unit volume may need to be updated.

WARNING: Input data larger than field

TSPAS_DDP encountered a value which exceeds the maximum value acceptable to the field. The field is filled with stars (*****).

WARNING: No files match template, *****

(***** represent a string of characters.) When deleting a database or a TE Model, TSPAS_DDP also removes all files which may have been created associated with the database or model. If TSPAS_DDP attempts to delete a file which does not exist, IS/CLI warns that the file, *****, was not found and therefore not deleted.

WARNING: Regenerated stand tmbr product changed. Adjust regen stand Rx data

The timber product selected for the regenerated stand has been changed. The harvest volumes in the Regenerated Stand Prescription screen (Main Menu) may need to be updated to reflect this new product.

WARNING: Regenerated stand tmbr product units changed. Adjust regen stand Rx data

The units of measure have been changed for the timber product selected for the regenerated stand. The harvest volumes in the Regenerated Stand Prescription screen (Main Menu) need to be updated to reflect these new units of measure.

When \$/acre field is completed, then \$/unit field must be blank

Attempting to provide a \$/unit value when a \$/acre cost has already been specified for this USFS cost. TSPAS_DDP permits specifying the cost for a given USFS cost category in only one of these two fields. Select DELETE RECORD to remove the \$/unit value. Note, a \$/unit value can be entered for this USFS cost only after the \$/acre value is deleted.

When \$/unit field is completed, then basis must be "T"

Attempting to specify a \$/acre USFS cost on a yearly cost, "Y," basis. TSPAS_DDP requires expressing \$/acre USFS costs on a Total Sale Volume basis, T.

When \$/unit field is completed, then \$/acre field must be blank

Attempting to provide a \$/acre value when a \$/unit cost has already been specified for this USFS cost. TSPAS_DDP permits specifying the cost for a given USFS cost category in only one of these two fields. Select DELETE RECORD to remove the \$/acre value. Note, a \$/acre value can be entered for this USFS cost only after the \$/unit value is deleted.

When COST field is completed, then *, SITE and REG fields must be blank**

(*** represent "LOG" or "VAL.") While saving the regenerated stand prescription information, TSPAS_DDP encountered an entry having a COST category specified and a category specified for at least one of the ***, SITE or REG fields. Completing the COST field indicates a stand management activity. For these, TSPAS_DDP requires specifying only a COST category and a stand age. The other fields, ***, SITE and REG, are used when specifying a timber harvest activity.

XXXXXXXX## is a reserved word. Re-enter or select DELETE RECORD (F9)

(## represents a number) Specifying "XXXXXXXX##" as an Adjustor/Variable name. TSPAS_DDP reserves this string of characters for the import process. As TSPAS_DDP imports a model, each Adjustor/Variable is compared to the list of Adjustors/Variables already existing on the system. If TSPAS_SP encounters an Adjustor/Variable that already exists, but is defined as a different type, the incoming Adjustor/Variable is changed to XXXXXXXX## - where ## is an incremented number starting at 01.

Appendix D: Computations in TSPAS_SP

Updating Prices and Costs to Analysis- Year Dollars

This section describes the computations underlying the TSPAS_SP screens and reports. It includes the more involved or unique computations, and omits the standard appraisal relationships. Capitalized terms can be found in the glossary included in this manual (Appendix B).

All prices, unit values and costs in the default database are expressed as dollars in the Base Year specified on the TSPAS_DDP General Information screen (Main Menu). All prices, costs, etc. in TSPAS_SP are expressed in Analysis-Year Dollars. When the Analysis Year occurs after Base Year for the default database, the default database numbers must be adjusted for expected changes in inflation, and for any expected real changes over and above the general Inflation Rate. (TSPAS_SP does not permit the Analysis Year to precede the default database Base Year.) This adjustment to Analysis-Year Dollars is as follows:

$$V_{ay} = V_{by} (1+g)^n (1+r)^n$$

where:

V_{ay} = A price, cost, or unit value expressed in Analysis Year Dollars (TSPAS_SP screens),

V_{by} = A price, cost, or unit value expressed in Default Database Base-Year dollars,

g = general Inflation Rate,

r = real rate of price or cost increase,

n = number of years between V_{ay} and V_{by} .

Real rates of change are entered by the TSPAS Information Manager for the price of each Timber Product, and for the unit value of each Nontimber Output. Rates of change for Logging & Related Costs (TSPAS_DDP Miscellaneous Costs and Prices screen, Price and Cost Changes menu) are applied to all costs associated with timber harvest. The only exception is Forest Service Costs which have separate rates. The rates entered for General Cost are applied to Nonharvest Activities.

Adjustor/Variable Types, and Calculations in TE Appraisal

Transaction Evidence (TE) models (both adjustment sets and equations) for appraising timber sales are always developed on a sale basis. The observed values for the Independent Adjustors/Variables in the model pertain to an entire sale, and the estimated values from these models also pertain to the entire sale. There are several reasons for this. First, TE Models are developed primarily to appraise overall timber sales, so the sale basis is appropriate. Second, the data from which the models are developed pertain to entire sales. These data are not recorded by Cutting Unit, nor can they be disaggregated back to the Cutting Unit level.

In TSPAS_SP, appraisal data are entered on screens for individual Cutting Units. We developed procedures to convert the Cutting Unit data to a sale basis for compatibility with TE Models. The four Adjustor/Variable types (the TSPAS Information Manager must choose one for each Adjustor/Variable) correspond to the four methods used to convert information to a sale basis. Computational procedures differ depending on whether the TE Model is used to estimate an individual Cutting Unit or an entire Sale Alternative.

Estimating for an Individual Cutting Unit—Estimating value for an Individual Cutting Unit is accomplished, in the sale-basis framework of TE, by computing an estimated value for an imaginary Sale Alternative, comprised of Cutting Units that are all identical to the Cutting Unit in question. The computations for the four Adjustor/Variable types are as follows:

- Type 1: Information for Type 1 Adjustors/Variables are specified by species. The value used in the TE Model is the weighted average computed across the species present in the Cutting Unit. The weights are based on the Harvest Volumes entered for the species.
- Type 2: The value used in the TE Model for Type 2 Adjustors/Variables equals the response entered on the TSPAS_SP appraisal screen multiplied by the number of Cutting Units in the Sale Alternative. For computations displayed on the TE appraisal screen, the number of Cutting Units equals the value entered for the “Planned # of Cutting Units in Sale.” For report computations, the number of Cutting Units is the actual number of Cutting Units included in the Sale Alternative.
- Type 3: The value entered for the Type 3 Adjustor/Variable on the TSPAS_SP TE appraisal screen is used without modification in the TE Model. (There is only one value stored per Sale Alternative.)
- Type 4: The value entered for the Type 4 Adjustor/Variable on the TSPAS_SP TE appraisal screen is used without modification in the TE Model.

Estimating for a Sale Alternative—The Sale Alternative calculations provide a composite of data from the individual Cutting Units that provides the correct information for a Sale Alternative. Computations for the four types are:

- Type 1: Information for Type 1 Adjustors/Variables are specified by species. The value used in the TE Model is the weighted average computed across the species present in the Sale Alternative. The weights are based on the Harvest Volumes entered for the species.
- Type 2: The value used for Type 2 Adjustors/Variables equals the sum of the responses entered for the individual Cutting Units.
- Type 3: The value for the Type 3 Adjustors/Variables entered on the TSPAS_SP TE appraisal screen is used without modification in the TE Model. (There is only one value stored per Sale Alternative.)
- Type 4: The value used in the TE Model for Type 4 Adjustors/Variables is the weighted average of the values computed for the individual Cutting Units, where the weights are based on the Harvest Volumes in the Cutting Units.

Profit & Risk Calculations

Residual Value Appraisal includes a cost category called Profit & Risk. The default value shown on the Residual Value Appraisal screen is calculated as follows:

$$\text{Profit \& Risk} = [\sum_s (P/100+P) (CU_VOL_s) (PRICE_s) (RECVRY_s)] / TVOL$$

where:

P = Profit & Risk percentage entered on the TSPAS_DDP Forest Wide Average Costs screen (Costs menu),

CU_VOL_s = Cutting Unit Harvest Volume for species s entered by a TSPAS_SP user on the Residual Value Appraisal screen,

$PRICE_s$ = Final Product Price for species s entered on the TSPAS_DDP General Appraisal Information screen (Main Menu),

$RECVRY_s$ = Recovery factor for species s entered on the TSPAS_DDP General Appraisal Information screen (Main Menu),

$TVOL$ = total Harvest Volume for the Cutting Unit entered on the TSPAS_SP Residual Value Appraisal screen.

Sale Alternative Costs in Residual Value Appraisal

In TSPAS_SP, Residual Value Appraisal information is entered for individual Cutting Units. These data must be combined to compute the Sale Alternative value for display on the TSPAS_SP reports. Species Harvest Volumes and the total Harvest Volumes are simply summed over all Cutting Units to compute the quantity for a Sale Alternative. Mill-Delivered Value, and all costs included in Stump-to-Mill Costs, and Base Rates are computed as weighted averages of the values entered for the individual Cutting Units, where the weights are based on the total Harvest Volumes for the Cutting Units. The Specified Road Costs are entered directly for Sale Alternatives. All other components are computed from the components already mentioned.

Converting Costs from One Unit of Measure to Another

At times TSPAS_SP converts a dollar amount from one Unit of Measure to another. An example might be converting dollars per thousand board feet to dollars per cord. TSPAS_SP performs the conversion by using the number of Cubic Feet per Unit of Measure for each Timber Product. These values are entered on the TSPAS_DDP Timber Product Information screen (Lists & Categories menu) and can be edited by TSPAS_SP users on the Select Timber Products screen. The conversion calculation is done as follows:

$$\$UB = \$UA [CUFTB / CUFTA]$$

where:

$\$UB$ = dollar amount per Unit of Measure for product B ,

$\$UA$ = dollar amount per Unit of Measure for product A ,

$CUFTB$ = number of Cubic Feet per Unit of product B ,

$CUFTA$ = number of Cubic Feet per Unit of product A .

Insufficient K-V Fund Calculations

In TSPAS_SP users indicate whether Nonharvest Activities will be paid for using K-V funds or appropriated dollars. It is possible for the cost of all activities to be funded by K-V to exceed the K-V dollars predicted to be generated by the Sale Alternative. If this occurs, TSPAS_SP assumes

that the Nonharvest Activities cost deficit is paid with appropriated dollars. There are insufficient K-V Funds if:

$$KVO > KVA$$

where KVO is K-V Other (the sum of all Nonharvest Activities marked "Y" for K-V Funded on the TSPAS_SP Nonharvest Activities screen) and KVA is K-V Available, which is calculated as follows:

$$KVA = (HBP - BRP) VOLP + \sum_p [(HBS_p - BRS_p) VOLS_p - [(ERC) (VOLP)]]$$

where:

HBP = High Bid for the Primary Product for the Sale Alternative,

BRP = Base Rate for the Primary Product for the Sale Alternative,

HBS_p = High Bid for Secondary Product p for the Sale Alternative,

BRS_p = Base Rate for Secondary Product p for the Sale Alternative,

ERC = Effective Road Credits,

$VOLP$ = Harvest Volume for the Primary Product for the Sale Alternative,

$VOLS_p$ = Harvest Volume for Secondary Product p for the Sale Alternative.

The excess of K-V Other over K-V Available is assumed to be paid with appropriated funds. This amount is pro-rated across all the activities included in K-V Other, as follows:

$$APPROP_k = COST_k [(KVO - KVA) / KVO]$$

where $APPROP_k$ is the dollar amount of K-V activity k assumed to be paid with appropriated funds, $COST_k$ is the total cost of activity k , and the other terms are as defined above.

PNV for Current Stand and First Rotation, RV Appraisal

This section discusses the Present Net Value (PNV) calculations for a Future Entry in the Existing Stand or a Future Entry in the First Rotation of the Regenerated Stand when Residual Value Appraisal is used. The PNV for each future Harvest Entry in the Existing Stand is computed separately for each Cutting Unit. The PNV for all future entries in the Existing Stand is calculated by summing these PNV 's. PNV for harvest entries in the First Rotation of the regenerated stand are computed in precisely the same manner. The following steps describe the procedure:

1. Compute the future Product Price (log scale) for each species harvested in the entry (FPP_s):

$$FPP_s = [(PRICE_s)(RECVRY_s)] + BP_s(1 + r_s)^n$$

where:

$PRICE_s$ = Final Product Price for species s ,

$RECVRY_s$ = Recovery factor for species s ,

BP_s = Bid Premium for species s ,

r_s = Real Rate of Change in Product Price for species s ,

n = number of years from the Analysis Year to the future Harvest Entry.

2. Compute the total future product value (*TFPV*):

$$TFPV = \sum_s (FPP_s)(SVOL_s)$$

where:

$SVOL_s$ = Harvest Volume for species s .

3. Compute the future average Manufacturing Cost (*FAMFG*):

$$FAMFG = (AMFG)(1 + r_{MFG})^n$$

where:

$AMFG$ = weighted average Manufacturing Cost across species, where the weights are based on the species Harvest Volumes in the entry,

r_{MFG} = Real Rate of Change in Manufacturing Cost.

4. Compute the future logging and related costs (*FL&RC*):

$$FL\&RC = (F\&BC + S\&LC + HC + EPC + TDC + P\&RC)(1 + r_{LRC})^n$$

where:

$F\&BC$ = Felling & Bucking Cost,

$S\&LC$ = Skidding & Loading Costs,

HC = Haul Costs,

EPC = Environmental Protection Costs,

TDC = Temporary Development Costs,

r_{LRC} = Real Rate of Change for Logging and Related Costs (TSPAS_DDP Miscellaneous Costs and Prices screen, Cost and Price Change menu),

$P\&RC$ = dollar amount of the allowance for Profit & Risk computed as follows:

$$= \{ \sum_s [P/(100+P)](PRICE_s)(RECVRY_s)(SVOL_s) \} / TVOL$$

where:

P = Profit & Risk percentage,

$PRICE_s$ = Product Price for species s ,

$RECVRY_s$ = Recovery factor for species s ,

$TVOL$ = total Harvest Volume in the Future Entry.

5. Compute the total future production costs (*TFPC*):

$$TFPC = (FAMFG + FL\&RC)(TVOL)$$

(all terms are as previously defined).

6. Compute the total future Specified Road cost (*TFSRC*):

$$TFSRC = (SRC)(TVOL)(1 + r_{LRC})^n$$

where:

SRC = Specified Road cost per Unit of Measure for timber.

7. Compute the total future Base Rate (*TFBR*):

$$TFBR = [(ER)(1 + r_{LRC})^n + AMBR](TVOL)$$

where:

ER = Essential Regeneration costs per Unit of Measure for timber,

AMBR = weighted average Minimum Bid Rate across species,
where the weights are based on the species Harvest
Volumes.

8. Compute the total future Effective Road Credits (*TFERC*):

$$TFERC = \text{the smaller of: } (TFPV - TFPC - TFBR)$$

or

$$(TFSRC)$$

If *TFERC* as calculated above is negative, let *TFERC* = 0.

9. Compute the total future Forest Service Costs (*TFUSFS*):

$$TFUSFS = (USFS)(TVOL)(1 + r_{LRC})^n$$

where:

USFS = USDA Forest Service Cost per Unit of Measure for timber.

10. Compute the total future Essential Regeneration costs (*TFER*):

$$TFER = (ER)(TVOL)(1 + r_{LRC})^n$$

where:

ER = Essential Regeneration cost per Unit of Measure for timber.

11. Compute the present net value of the Future Entry (*PNV*):

$$PNV = (TFPV - TFPC - TFERC - TFUSFS - TFER)[1/(1 + i)^n]$$

where:

i = Discount Rate.

PNV for Current Stand and First Rotation, TE Appraisal

This section presents the Present Net Value (*PNV*) calculations for a Future entry in the Existing Stand or the First Rotation of the Regenerated Stand when Transactions Evidence (TE) Appraisal is used. *PNV* is computed separately for each Future Entry on each Cutting Unit, and summed. The following steps describe the process of computing the *PNV* for a future Harvest Entry.

1. Compute the future Product Price (log scale) for each species *s* harvested in the entry (*FPP_s*):

$$FPP_s = (PRICE_s)(RECVRY_s)(1 + r_s)^n$$

where:

PRICE_s = Final Product Price for species *s*,

RECVRY_s = Recovery factor for species *s*,

r_s = Real Rate of Change in Product Price for species *s*
(Timber Product Prices screen),

n = number of years from the Analysis Year to the future
Harvest Entry.

2. Compute the total current product value (*TCPV*) for the future Harvest Entry:

$$TCPV = \sum_s [(PRICE_s)(RECVRY_s)(SVOL_s)]$$

3. Compute the total current production costs (*TCPC*) for the future Harvest Entry:

$$TCPC = TCPV - [(HB)(TVOL)]$$

where:

HB = High Bid (Analysis-Year Dollars),

TVOL = total Harvest Volume in the Future Entry.

4. Compute the total future product costs (*TFPC*):

$$TFPC = (TCPC)(1 + m)^n$$

where:

m = simple average of the real rates of increase for Manufacturing Cost and Logging and Related Costs (TSPAS_DDP Manufacturing Cost and Miscellaneous Costs and Prices screens, respectively, Price and Cost Change menu).

5. Compute the total future product value (*TFPV*):

$$TFPV = \sum_s (FPP_s)(SVOL_s)$$

where:

SVOL_s = Harvest Volume for species *s*.

- 6-11. These calculations are the same as steps 6-11 in the *PNV* for Current Stand and First Rotation, RV Appraisal section.

PNV Calculations for Rotations Two-Through-Infinity

The harvest entries specified for the First Rotation of the Regenerated Stand are assumed to be repeated in each of the subsequent Rotations, Rotations two-through-infinity. The present net value (*PNV*) from one of these series of harvest entries is calculated using the procedure described below. The overall *PNV* for Rotations two-through-infinity is then calculated by summing the *PNV* from each of the individual series of harvest entries.

- 1-10. These calculations are essentially the same as steps 1-10 in the *PNV* for Current Stand and First Rotation, RV Appraisal section. Future Product Prices and costs are computed for the timing of the Harvest Entry in Rotation two in the Regenerated Stand. Real rates of increase, however, are applied only through the end of the First Rotation of the Regenerated Stand (*n* is the number of years from the Analysis Year to the end of the First Rotation of the Regenerated Stand). After that point, TSPAS_SP assumes no further real increases.

11. Compute the Present Net Value of the perpetual series of harvest entries beginning with rotation two.

$$PNV = (TFPV - TFPC - TRERC - TFUSFS - TFER)$$

$$[1/(1 + i)^y] [1/(1 + i)^R - 1] [1/(1 + i)^A]$$

where:

i = Discount Rate,

y = number of years from the Analysis Year to the beginning of the First Rotation of the Regenerated Stand,

R = Rotation length (in years) for the Regenerated Stand,

A = stand age of the Regenerated Stand at the time of the Harvest Entry.

Nontimber Output Computations

TSPAS_SP reports display the expected change in Nontimber Output associated with a Sale Alternative. The change in the average annual quantity in Decade d ($QCHG_d$) is

$$QCHG_d = [QSA_d - QBG_d]$$

where:

QSA_d = average annual quantity for the Area of Influence in Decade d entered for the Sale Alternative,

QBG_d = average annual quantity for the Area of Influence in Decade d if the sale alternative is not undertaken (the background).

The Present Value of nontimber benefits is based on the expected annual change per Decade, $QCHG_d$, multiplied by the unit value, adjusted for real changes to the year of occurrence. These adjusted values are then discounted to the Analysis Year and summed.

$$PV = \sum_d \sum_t \{ (QCHG_d)(PRICE)(1+r)^{[(Y_s-Y_a)+(d-1)(10)+t]} \} \{ 1/(1+i)^{[(Y_s-Y_a)+(d-1)(10)+t]} \}$$

where:

PV = Present Value of future nontimber benefits,

d = Decade (10-year period) beginning with the Sale Year,

t = year within the Decade ($t = 1$ to 10),

$PRICE$ = value per unit,

r = Real Rate of Change,

Y_s = Sale Year,

Y_a = Analysis Year,

i = Discount Rate.

TSPAS_SP Report 1 Calculations

Incremental Road Costs (undiscounted)—The total undiscounted Incremental Road Cost for product p on a Cutting Unit ($TIRC_p$) is calculated as:

$$TIRC_p = \{ [(HB_p)(CU_VOL_p)] / \sum_p (HB_p)(CU_VOL_{c,p}) \} (ROAD)$$

where:

HB_p = High Bid for product p on the Cutting Unit,

CU_VOL_p = Harvest Volume for product p on the Cutting Unit,

$ROAD$ = total Incremental Road Cost for the Cutting Unit from the TSPAS_SP Road Cost Screen.

Incremental Road Cost for the Primary Product is expressed on a per unit volume basis. Other road costs are summed over all Secondary Products and expressed in total dollars.

Forest Service Costs for Cutting Units (undiscounted)— Forest Service costs occurring prior to the Sale Year ($CU_PRECOST$) are calculated as:

$$CU_PRECOST = (CU_ACRES) \left[\sum_k \sum_{t \in PRE} AC_COST_{k,t} \right] \\ + \sum_p (CU_VOL_p) \left[\sum_m \sum_{t \in PRE} (UNIT_COST_T_{m,t}) (CUFT_p / CUFT_{prim}) \right]$$

where:

CU_ACRES = number of acres in the Cutting Unit,

$AC_COST_{k,t}$ = per acre cost k , occurring in year t ,

t = year from Sale Year,

PRE = set of years prior to Sale Year ($t \leq 0$),

$UNIT_COST_T_{m,t}$ = per unit FS cost m in year t applying to total Harvest Volume (basis = T),

CU_VOL_p = Harvest Volume of product p on cut unit,

$CUFT_p$ = number of Cubic Feet per Unit of product p ,

$CUFT_{prim}$ = number of Cubic Feet per Unit of the Primary Product.

Forest Service costs occurring during the sale contract ($CU_SALE COSTS$) are calculated as:

$$CU_SALE COSTS = (CU_ACRES) \left[\sum_k \sum_{t \in SALE} (AC_COST_{k,t}) \right] \\ + \sum_p (CU_VOL_p) \left[\sum_m \sum_{t \in SALE} (UNIT_COST_T_{m,t}) (CUFT_p / CUFT_{prim}) \right] \\ + \sum_p \sum_n \sum_{t \in SALE} [(UNIT_COST_Y_{n,t}) (CUFT_p / CUFT_{prim}) (CU_VOL_p) (PROFILE_t)]$$

where:

$UNIT_COST_Y_{n,t}$ = per unit FS cost n in year t applying to only the Harvest Volume in year t (basis = Y),

$PROFILE$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates & Forest Service Cost screen,

$SALE$ = set of years during the sale contract ($0 \leq t \leq$ the last year in the sale contract).

Forest Service costs occurring after the sale contract expires ($CU_POST COSTS$) are calculated as:

$$CU_POST COSTS = (CU_ACRES) \left[\sum_k \sum_{t \in SALE} AC_COST_{k,t} \right] \\ + \sum_p (CU_VOL_p) \left[\sum_m \sum_{t \in SALE} (UNIT_COST_T_{m,t}) (CUFT_p / CUFT_{prim}) \right]$$

where:

$POST$ = set of years after the sale contract expires ($t >$ last year of the sale contract).

Discounted NET VALUE (1)—This value is the total High Bid Value (High Bid times Harvest Volume) minus the Incremental Road Costs allocated to the Primary Product. Net Value (1) (D_NET_VALUE1) is calculated as follows:

$$D_NET_VALUE1 = \sum_t [(CU_HB_{prim})(CU_VOL_{prim})(PROFILE_t)(1+r_{AVG,prim})^{ys} / (1+i)^y] - D_IRC_p$$

where:

CU_HB_{prim} = High Bid for the Primary Product on Cutting Unit,

CU_VOL_{prim} = total Harvest Volume for the Primary Product on the Cutting Unit,

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates and Forest Service Cost screen,

$r_{AVG,prim}$ = average Real Rate of Change in the Primary Product Price calculated as a weighted average over species, weighted by the species Harvest Volumes on the Cutting Unit,

ys = Sale Year – Analysis Year,

y = Sale Year – Analysis Year + t ,

D_IRC_p = discounted Incremental Road Costs for the Primary Product. See the Discounted Incremental Road Costs for Product p section for the calculation of this item.

Discounted Value for Other Timber Products for Cutting Units—The discounted value for other Timber Products for Cutting Units (D_CU_OTP) is calculated as:

$$D_CU_OTP = \sum_{p \neq prim} \sum_t [(CU_HB_p)(CU_VOL_p)(PROFILE_t)(1+r_{AVG,p})^y / (1+i)^y]$$

where:

CU_HB_p = High Bid for Secondary Product p on Cutting Unit,

CU_VOL_p = total Harvest Volume for Secondary Product p on the Cutting Unit,

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates and Forest Service Cost screen,

$r_{AVG,p}$ = average Real Rate of Change in value for product p calculated as a weighted average over species, weighted by the species Harvest Volumes on the Cutting Unit,

y = Sale Year – Analysis Year + t .

Discounted Incremental Road Costs for Product p —Incremental Road Costs are calculated separately for each product harvested on the Cutting Unit. TSPAS_SP assumes that the Incremental Road Costs occur as soon as possible in the sale contract. The discounted Incremental Road Costs for product p (D_IRC_p) is calculated as follows:

$$D_IRC_p = \sum_t [CU_PR_YRD_{p,t} / (1+i)^y]$$

where:

$$y = \text{Sale Year} - \text{Analysis Year} + t$$

$CU_PUR_YRD_{p,t}$ = Incremental Road Cost for the Cutting Unit for product p in year t . It is the smaller of:

1. maximum future harvest value in year t to which Incremental Road Costs can be applied for the Cutting Unit ($MFHV_p$), calculated as:

$$MFHV_p = (CU_HB_p)(CU_VOL_p)(PROFILE_t)(1+r_{AVG,p})^{ys} - [(BR_p)(CU_VOL_p)(PROFILE_t)]$$

where:

CU_HB_p = High Bid for product p on the Cutting Unit,

CU_VOL_p = total Harvest Volume for product p on the Cutting Unit,

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates and Forest Service Cost screen,

$r_{AVG,p}$ = average rate of increase in value for product p calculated as a weighted average over species, weighted by the species Harvest Volumes on the Cutting Unit,

BR_p = Base Rate for the Primary Product,

ys = Sale Year – Analysis Year.

2. total future Incremental Road Cost for product p , for the Cutting Unit ($TFIRC_p$), calculated as:

$$TFIRC_p = (TIRC_p)(1+r_{AVG})^{ys}$$

where:

$TIRC_p$ = total Incremental Road Cost pro-rated to product p (see Incremental Road Costs section for calculation specifics).

3. Incremental Road Cost remaining ($REMAIN_{p,t}$) that have not been charged to earlier years in the sale, calculated as:

$$REMAIN_{p,t} = REMAIN_{p,t-1} - CUR_PUR_YRD_{p,t-1}$$

where:

$REMAIN_{p,t-1}$ = $REMAIN_{p,t}$ from the previous year,

$CUR_PUR_YRD_{p,t-1}$ = $CUR_PUR_YRD_{p,t}$ from the previous year
(note, for the first year of the sale $CUR_PUR_YRD_{p,t-1} = TFIRC_p$).

Discounted USFS-Built Road Cost for Cutting Units—For discounting purposes, TSPAS_SP assumes construction for USFS-built roads occurs in the first year of the sale. Discounted USFS-Built Road Cost for Cutting Units (D_CU_FSRD) is calculated as:

$$D_CU_FSRD = CU_FSRD (1+r_{LRC})^{y1} / (1+i)^{y1}$$

where:

CU_FSRD = Incremental Road Cost entered for the Cutting Unit on the TSPAS_SP Road Cost screen,

r_{LRC} = rate of increase for Logging and Related Costs,

$y1$ = Sale Year – Analysis Year + 1.

Discounted K-V Costs for Cutting Units—The discounted K-V Costs on Report 1 (D_CU_ER) include only the Essential Regeneration costs for the Cutting Unit. It is calculated as follows:

$$D_CU_ER = \sum_t \sum_p [(CU_ER_p)(1+r_{LRC})^{ys}(CU_VOL_p)(PROFILE_t)] / (1+i)^y$$

where:

CU_ER_p = Essential Regeneration entered on screen for product p for the Cutting Unit,

r_{LRC} = Real Rate of Change for Logging and Related Costs,

ys = Sale Year – Analysis Year,

CU_VOL_p = Harvest Volume for product p for the Cutting Unit,

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rate and Forest Service Cost screen,

t = year from Sale Year,

i = Discount Rate,

y = Sale Year – Analysis Year + t .

Discounted USFS Costs for Cutting Units—Forest Service costs occurring prior to the Sale Year ($D_CU_PRE COSTS$) are calculated as:

$$D_CU_PRE COSTS = (CU_ACRES) \left[\sum_k \sum_{t \in PRE} (AC_COST_{k,t})(1+r_{FS})^y / (1+i)^y \right] \\ + \sum_p (CU_VOL_p) \left[\sum_m \sum_{t \in PRE} (UNIT_COST_T_{m,t})(CUFT_p / CUFT_{prim})(1+r_{FS})^y / (1+i)^y \right]$$

where:

CU_ACRES = number of acres in the Cutting Unit,

$AC_COST_{k,t}$ = per acre cost k , occurring in year t ,

t = year from Sale Year,

r_{FS} = Real Rate of Change applying to Forest Service costs,

y = Sale Year – Analysis Year + t ,

i = Discount Rate,

PRE = set of years prior to Sale Year ($t \leq 0$),

$UNIT_COST_T_{m,t}$ = per unit FS cost m in year t applying to total Harvest Volume (basis = T),

CU_VOL_p = Harvest Volume of product p on Cutting Unit,

$CUFT_p$ = number of Cubic Feet per Unit of product p ,

$CUFT_{prim}$ = number of Cubic Feet per Unit of the Primary Product.

Forest Service costs occurring during the sale contract ($D_CU_SALE_COSTS$) are calculated as:

$$\begin{aligned} D_CU_SALE_COSTS = & (CU_ACRES) \left[\sum_k \sum_{t \in SALE} (AC_COST_{k,t}) (1+r_{FS})^t / (1+i)^t \right] \\ & + \sum_p (CU_VOL_p) \left[\sum_m \sum_{t \in SALE} (UNIT_COST_T_{m,t}) (CUFT_p / CUFT_{prim}) (1+r_{FS})^t / (1+i)^t \right] \\ & + \sum_p \sum_n \sum_{t \in SALE} [(UNIT_COST_Y_{n,t}) (CUFT_p / CUFT_{prim}) (CU_VOL_p) (PROFILE_t) (1+r_{FS})^t / (1+i)^t] \end{aligned}$$

where:

$UNIT_COST_Y_{nt}$ = per unit FS cost n in year t applying to only the Harvest Volume in year t (basis = Y),

$SALE$ = set of years during the sale contract ($0 \leq t \leq$ the last year in the sale contract).

Forest Service costs occurring after the sale contract expires ($D_CU_POSTCOSTS$) are calculated as:

$$\begin{aligned} D_CU_POSTCOSTS = & (CU_ACRES) \left[\sum_k \sum_{t \in POST} (AC_COST_{k,t}) (1+r_{FS})^t / (1+i)^t \right] \\ & + \sum_p (CU_VOL_p) \left[\sum_m \sum_{t \in POST} (UNIT_COST_T_{m,t}) (CUFT_p / CUFT_{prim}) (1+r_{FS})^t / (1+i)^t \right] \end{aligned}$$

where:

$POST$ = set of years after the sale contract expires ($t >$ last year of the sale contract).

Current Entry Calculations for Reports 2-5

Road Credits (undiscounted)—The Effective Road Credits for product p (ERC_p) are the smaller non-zero value of:

1. $SALE_HB_p - SALE_BR_p$
2. $SALE_PUR_RD_p$

where:

$SALE_HB_p$ = estimated High Bid for product p for the Sale Alternative,

$SALE_BR_p$ = Base Rate for product p for the Sale Alternative,

$SALE_PUR_RD_p$ = portion of the total Purchaser Road Cost pro-rated to product p , as follows:

$$SALE_PUR_RD_p = \left\{ \frac{(SALE_HB_p)(SALE_VOL_p)}{\sum_p (SALE_HB_p)(SALE_VOL_{c,p})} \right\} (SALE_ROAD)$$

where:

$SALE_VOL_p$ = Harvest Volume for product p for the Sale Alternative,

$SALE_ROAD$ = total Purchaser Road Cost for the Sale Alternative.

Effective Road Credits for the Primary Product is divided by the volume of that product to express it on a per-unit basis. Other Effective Road Credits are summed over all Secondary Products and expressed in total dollars.

Ineffective road credits for the Primary Product in a Sale Alternative ($IERC_{prim}$) is calculated as:

$$IERC_{prim} = [SALE_PUR_RD_{prim} - ERC_{prim}] / SALE_VOL_{prim}$$

where:

$SALE_PUR_RD_{prim}$ = portion of the Purchaser Road Cost pro-rated to the Primary Product,

ERC_{prim} = Effective Road Credits for the Primary Product,

$SALE_VOL_p$ = Harvest Volume for the Primary Product for the Sale Alternative.

USFS Costs for Sale Alternatives (undiscounted)— Forest Service costs occurring prior to the Sale Year ($SALE_PRECOST$) are calculated as:

$$SALE_PRECOST = (SALE_ACRES) \left[\sum_k \sum_{t \in PRE} AC_COST_{kt} \right] \\ + \sum_p (SALE_VOL_p) \left[\sum_m \sum_{t \in PRE} (UNIT_COST_T_{mt}) (CUFT_p / CUFT_{prim}) \right]$$

where:

$SALE_ACRES$ = number of acres in the Sale Alternative,

AC_COST_{kt} = per acre cost k , occurring in year t ,

t = year from Sale Year,

PRE = set of years prior to Sale Year ($t \leq 0$),

$UNIT_COST_T_{mt}$ = per unit FS cost m in year t applying to total Harvest Volume (basis = T),

$SALE_VOL_p$ = Harvest Volume of product p on Sale Alternative,

$CUFT_p$ = number of Cubic Feet per Unit of product p ,

$CUFT_{prim}$ = number of Cubic Feet per Unit of the Primary Product.

Forest Service costs occurring during the sale contract ($SALE_SALE COSTS$) are calculated as:

$$SALE_SALE COSTS = (SALE_ACRES) \left[\sum_k \sum_{t \in SALE} (AC_COST_{kt}) \right] \\ + \sum_p (SALE_VOL_p) \left[\sum_m \sum_{t \in SALE} (UNIT_COST_T_{mt}) (CUFT_p / CUFT_{prim}) \right] \\ + \sum_p \sum_n \sum_{t \in SALE} [(UNIT_COST_Y_{nt}) (CUFT_p / CUFT_{prim}) (SALE_VOL_p) (PROFILE_t)]$$

where:

$UNIT_COST_Y_{nt}$ = per unit FS cost n in year t applying to only the Harvest Volume in year t (basis = Y),

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rate and Forest Service Cost screen,

$SALE$ = set of years during the sale contract ($0 \leq t \leq$ the last year in the sale contract).

Forest Service costs occurring after the sale contract expires ($SALE_POSTCOSTS$) are calculated as:

$$SALE_POSTCOSTS = (SALE_ACRES) \left[\sum_k \sum_{t \in POST} AC_COST_{kt} \right] + \sum_p (SALE_VOL_p) \left[\sum_m \sum_{t \in POST} (UNIT_COST_T_{mt}) (CUFT_p / CUFT_{prim}) \right]$$

where:

$POST$ = set of years after the sale contract expires ($t >$ last year of the sale contract).

Discounted Stat High Bid—Discounted Stat High Bid (D_SHB) is calculated as follows:

$$D_SHB = \sum_t [(SALE_HB_{prim}) (SALE_VOL_{prim}) (PROFILE_t) (1+r_{AVG})^{ys} / (1+i)^y] - D_ERC_p$$

where:

$SALE_HB_{prim}$ = High Bid for the Primary Product for the Sale Alternative,

$SALE_VOL_{prim}$ = total harvest for the Primary Product for the Sale Alternative,

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates and Forest Service Cost screen,

r_{AVG} = average Real Rate of Change for product value calculated as a weighted average over species, weighted by the species Harvest Volumes for the Sale Alternative,

ys = Sale Year – Analysis Year,

y = Sale Year – Analysis Year + t ,

D_ERC_p = discounted Effective Road Credits for the Primary Product. See the Discounted Effective Road Credits for Product p section for the calculation of this item.

Discounted Value for Other Timber Products for Sale Alternatives—The discounted value for other Timber Products for Sale Alternatives (D_SALE_OTP) is calculated as:

$$D_SALE_OTP = \sum_{p \neq prim} \sum_t \sum_c [(CU_HB_{p,c}) (CU_VOL_{p,c}) (PROFILE_t) (1+r_{AVG,p})^y / (1+i)^y]$$

where:

$CU_HB_{p,c}$ = High Bid for Secondary Product p on Cutting Unit c ,

$CU_VOL_{p,c}$ = total Harvest Volume for Secondary Product p on Cutting Unit c ,

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates and Forest Service Cost screen,

$r_{AVG,p}$ = average Real Rate of Change in value for Secondary Product p calculated as a weighted average over species, weighted by the species Harvest Volumes on the Cutting Unit,

y = Sale Year – Analysis Year + t .

Discounted Effective Road Credits for Product p —Effective Road Credits are calculated separately for each product harvested in a Sale Alternative. TSPAS_SP assumes the Effective Road Credits are applied against the harvest value as soon as possible in the sale contract. The discounted Effective Road Credits for product p (D_ERC_p) is calculated as follows:

$$D_ERC_p = \sum_t [ERC_Y_{p,t} / (1+i)^y]$$

where:

y = Sale Year – Analysis Year + t ,

$ERC_Y_{p,t}$ = Effective Road Credits for the Sale Alternative for product p in year t . It is the smaller of:

1. maximum future harvest value in year t to which road credits can be applied for the Sale Alternative ($MFHV_p$), calculated as:

$$MFHV_p = (SALE_HB_p)(SALE_VOL_p)(PROFILE_t)(1+r_{AVG})^{ys} - [(SALE_BR_p)(SALE_VOL_p)(PROFILE_t)]$$

where:

$SALE_HB_p$ = High Bid for the product p for the Sale Alternative,

$SALE_VOL_p$ = total harvest for product p for the Sale Alternative,

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates and Forest Service Cost screen,

r_{AVG} = average Real Rate of Change for product value calculated as a weighted average over species, weighted by the species Harvest Volumes on the Cutting Unit,

$SALE_BR_p$ = Base Rate for the Primary Product,

ys = Sale Year – Analysis Year.

2. total future Effective Road Credits for product p for the Sale Alternative ($TFERC_p$), calculated as:

$$TFERC_p = (TERC_p)(1+r_{AVG})^{ys}$$

where:

$TERC_p$ = total effective road credits for product p (see Road Credits (undiscounted) section for calculation specifics).

3. effective road credits remaining ($REMAIN_{p,t}$) that have not been charged to earlier years in the sale, calculated as:

$$REMAIN_{p,t} = REMAIN_{p,t-1} - ERC_{Y_{p,t-1}}$$

where:

$REMAIN_{p,t-1}$ = $REMAIN_{p,t}$ from the previous year,

$ERC_{Y_{p,t-1}}$ = $ERC_{Y_{p,t}}$ from the previous year
(note, for the first year of the sale
 $ERC_{Y_{p,t-1}} = TFERC_p$).

Discounted USFS-Built Road Cost for Sale Alternatives—For discounting purposes, TSPAS_SP assumes construction for Forest Service-built roads occurs in the first year of the sale. Discounted USFS-Built Road Cost for Sale Alternatives (D_SALE_FSRD) is calculated as:

$$D_SALE_FSRD = SALE_FSRD (1+r_{LRC})^{y1} / (1+i)^{y1}$$

where:

$SALE_FSRD$ = road cost entered for the Sale Alternative on the TSPAS_SP Road Cost screen,

r_{LRC} = Real Rate of Change for Logging and Related Costs,

$y1$ = Sale Year – Analysis Year + 1.

Discounted Essential Regeneration for Sale Alternatives—The discounted Essential Regeneration costs for a Sale Alternative (D_SALE_ER) are calculated as follows:

$$D_SALE_ER = \sum_t \sum_p \sum_c [(CU_ER_{p,c})(1+r_{LRC})^{ys}(CU_VOL_{p,c})(PROFILE_t)] / (1+i)^y$$

where:

$CU_ER_{p,c}$ = Essential Regeneration entered on the TSPAS_SP appraisal screen for product p on Cutting Unit c ,

r_{LRC} = Real Rate of Change for Logging and Related Costs,

ys = Sale Year – Analysis Year,

$CU_VOL_{p,c}$ = Harvest Volume for product p on Cutting Unit c ,

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates and Forest Service Cost screen,

t = year from Sale Year,

i = Discount Rate,

y = Sale Year – Analysis Year + t .

Discounted Other K-V for a Sale Alternative—Other K-V is assumed to be collected from timber receipts after Base Rates have been paid, and after the Effective Road Credits have been used. Discounted Other K-V (D_OKV) is calculated as follows:

$$D_OKV = \sum_t [OKV_t / (1+i)^y]$$

where:

OKV_t = Other K-V collected in year t . OKV_t is the smaller of:

1. timber receipts available for Other K-V in year t (KV_AVAIL), calculated as:

$$KV_AVAIL = \sum_p [(SALE_HB_p)(SALE_VOL_p)(PROFILE_t)(1+r_{AVG})^{ys}] - [(SALE_BR_p)(SALE_VOL_p)(PROFILE_t)] - ERC_Y_{p,t}$$

where:

$SALE_HB_p$ = High Bid for the product p for the Sale Alternative,

$SALE_VOL_p$ = total Harvest Volume for product p for the Sale Alternative,

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates and Forest Service Cost screen,

r_{AVG} = average Real Rate of Change for Product Price calculated as a weighted average over species, weighted by the species Harvest Volumes on the Cutting Unit,

$SALE_BR_p$ = Base Rate for the Primary Product,

ys = Sale Year – Analysis Year,

$ERC_Y_{p,t}$ = Effective Road Credits for product p used in year t (see the Discounted Effective Road Credits for product p Section for $ERC_Y_{p,t}$ calculations).

2. The remaining K-V Other yet to be collected in year t (KV_REMAIN_t), calculated as:

$$KV_REMAIN_t = KV_REMAIN_{t-1} - OKV_{t-1}$$

Discounted USFS Costs for Sale Alternatives—Forest Service costs occurring prior to the Sale Year ($D_SALE_PRE COSTS$) are calculated as:

$$D_SALE_PRE COSTS = (SALE_ACRES) \left[\sum_k \sum_{t \in PRE} (AC_COST_{kt})(1+r_{FS})^y / (1+i)^y \right] + \sum_p (SALE_VOL_p) \left[\sum_m \sum_{t \in PRE} (UNIT_COST_{T_{mt}})(CUFT_p / CUFT_{pyrim})(1+r_{FS})^y / (1+i)^y \right]$$

where:

$SALE_ACRES$ = number of acres in the Sale Alternative,

AC_COST_{kt} = per acre cost k , occurring in year t ,

t = year from Sale Year,

r_{FS} = Real Rate of Change applying to Forest Service costs,

y = Sale Year – Analysis Year + t ,

i = Discount Rate,

PRE = set of years prior to Sale Year ($t \leq 0$),

$UNIT_COST_T_{mt}$ = per unit FS cost m in year t applying to total Harvest Volume (basis = T),

$SALE_VOL_p$ = Harvest Volume of product p on Sale Alternative,

$CUFT_p$ = number of Cubic Feet per Unit of product p ,

$CUFT_{prim}$ = number of Cubic Feet per Unit of the Primary Product.

Forest Service costs occurring during the sale contract ($D_SALE_SALE COSTS$) are calculated as:

$$\begin{aligned} D_SALE_SALE COSTS = & (SALE_ACRES) \left[\sum_k \sum_{t \in SALE} (AC_COST_{kt}) (1+r_{FS})^t / (1+i)^t \right] \\ & + \sum_p (SALE_VOL_p) \left[\sum_m \sum_{t \in SALE} (UNIT_COST_T_{mt}) (CUFT_p / CUFT_{prim}) (1+r_{FS})^t / (1+i)^t \right] \\ & + \sum_p \sum_n \sum_{t \in SALE} [(UNIT_COST_Y_{nt}) (CUFT_p / CUFT_{prim}) (SALE_VOL_p) (PROFILE_t) (1+r_{FS})^t / (1+i)^t] \end{aligned}$$

where:

$UNIT_COST_Y_{nt}$ = per unit FS cost n in year t applying to only the Harvest Volume in year t (basis = Y),

$PROFILE_t$ = fraction of the harvest specified for year t on the TSPAS_SP Harvest Rates and Forest Service Cost screen,

$SALE$ = set of years during the sale contract ($0 \leq t \leq$ the last year in the sale contract).

Forest Service costs occurring after the sale contract expires ($D_SALE_POST COSTS$) are calculated as:

$$\begin{aligned} D_SALE_POST COSTS = & (SALE_ACRES) \left[\sum_k \sum_{t \in POST} (AC_COST_{kt}) (1+r_{FS})^t / (1+i)^t \right] \\ & + \sum_p (SALE_VOL_p) \left[\sum_m \sum_{t \in POST} (UNIT_COST_T_{mt}) (CUFT_p / CUFT_{prim}) (1+r_{FS})^t / (1+i)^t \right] \end{aligned}$$

where:

$POST$ = set of years after the sale contract expires ($t >$ last year of the sale contract).

Appendix E: Data Summary for TSPAS Default Database

This section provides a listing of the data included in the TSPAS default database. Data are listed by the following main topics: I. Basic Default Database Information; II. Transaction Evidence Appraisal Information; III. RV Appraisal; IV. Regenerated Stand; V. Nontimber Outputs. It is intended as a quick reference for use in data preparation.

- I. Basic Default Database Information
 - A. Base Year for costs and prices
 - B. Discount rate
 - C. Timber species codes
 - D. Timber product codes
 - E. Timber product information—for each timber product listed in section I.D, provide
 1. Units of measure
 2. Minimum deposit to Treasury
 3. Average stumpage price
 4. Number of Cubic Feet per Unit of measure
 - F. General Appraisal Information—the following items are entered by timber species for each timber product listed in I.D above.
 1. Product Price
 2. Overrun/recovery percentage
 3. Minimum bid rate
 - G. Site preparation costs—provide categories and default values—10 maximum
 - H. Regeneration costs—provide categories and default values—10 maximum
 - I. Potential sale requirements—20 maximum
 - J. Average specified road cost
 - K. Average USFS costs for future entries
 - L. Price and Cost Changes
 1. Inflation rate
 2. Manufacturing cost—for each timber product (I.D), provide the average annual Real Rate of Change per decade in manufacturing cost for 5 decades beginning with the decade containing the Base Year (I.A)
 3. Misc. costs and prices changes—provide the average annual Real Rate of Change per decade for 5 decades beginning with the decade containing the Base Year (I.A) for the following costs:
 - a. Logging & Related Costs
 - b. USFS costs
 - c. General costs
 - d. Average Stumpage Price
 4. Timber Product Price changes—for each timber product (I.D), enter the average annual Real Rate of Change per decade in Product Price (by species) for 5 decades beginning with the decade containing the Base Year for the default database (I.A).
- II. Transaction Evidence Appraisal Information—choose between equation-based or adjustment-based TE.

- A. General Information
 - 1. Base Year
 - 2. Description of the value estimated by the TE model
 - 3. The timber product whose value is estimated
 - B. List of Adjustors/Variables used in TE appraisal
 - 1. Code name
 - 2. Units of measure
 - 3. Description
 - C. TE model information
 - 1. Equation-based: provide the regression coefficients and the Variables in the TE equation
 - 2. Adjusting-Averages: provide the adjustments and Adjustors in the TE Model
 - D. Weighted average defaults—provide default values by species for each species-specific (Type 1) Adjustor/Variable specified in section II.C above
 - E. Cost and bid adjustments—provide any adjustments subtracted from TE model estimated value to calculate High Bid—5 maximum
- III. RV Appraisal
- A. Logging method codes—5 maximum
 - B. Logging cost categories—specify a way of categorizing logging cost other than by logging method (eg. average DBH)—5 maximum
 - C. Felling and bucking costs—provide costs for each combination of logging method (III.A) and logging cost category (III.B)
 - D. Skidding and loading costs—provide costs for each combination of logging method (III.A) and logging cost category (III.B)
 - E. Average costs
 - 1. Haul cost
 - 2. Percent for profit & risk
 - 3. Road maintenance cost
 - 4. Temporary development cost
 - 5. Environmental protection cost
 - F. Stand Appraisal—the following items are entered by timber species for each timber product listed in I.D above.
 - 1. Manufacturing cost
 - 2. Bid premium
- IV. Regenerated Stand
- A. Management intensity descriptions—10 maximum
 - B. Timber strata field names—4 fields maximum
 - C. Timber strata field codes—provide valid codes for each strata field name defined above
 - D. Timber strata definitions—specify combinations of strata field codes that identify a valid timber strata.
 - E. Stand management costs—provide categories and default values—5 maximum
 - F. Transaction Evidence Appraisal Information—choose between equation-based or adjustment-based TE.

1. General Information
 - a. Base Year
 - b. Description of the value estimated by the TE model
 - c. The timber product whose value is estimated
 2. List of Adjustors/Variables used in TE appraisal
 - a. Code name
 - b. Units of measure
 - c. Description
 3. TE model information
 - a. Equation-based: provide the regression coefficients and the Variables in the TE equation
 - b. Adjusting-Averages: provide the adjustments and Adjustors in the TE model
 4. Weighted average defaults—provide default values by species for each species-specific (Type 1) Adjustor/Variable specified in section IV.F.3 above.
 5. Default value set definitions—5 maximum
 6. Default value sets—provide default values for the Adjustors/Variables in the regenerated stand TE model for the value sets in IV.F.3 above.
 7. Cost and bid adjustments—provide any adjustments subtracted from TE model estimated value to calculate High Bid—5 maximum
- G. Provide Harvest Volumes by species groups for the harvests associated with the management intensity options applicable to each timber strata.
- V. Nontimber Outputs
- A. Nontimber output codes—quantified nontimber outputs
 - B. Nontimber output information—for each nontimber output listed in section V.A, provide
 1. Units of measure
 2. Value per unit
 - C. Nontimber Output Quantities—for nontimber outputs (V.A), for each management intensity option applicable to each regenerated stand timber strata (defined in IV.G), provide
 1. Average annual per-acre quantity for unharvested, existing stands.
 2. Average annual per-acre quantities by decade for the regenerated stand.
 - D. Nontimber output value—for each nontimber output (V.A), provide the average annual Real Rate of Change per decade in value for 5 decades beginning with the decade containing the Base Year (I.A)

Jones, J. Greg.; Meacham, Mary L.; Schuster, Ervin G.; Cahoon, Rick D. 1995. Timber Sale Planning and Analysis System: a user's guide to the TSPAS Default Database Program. Gen. Tech. Rep. INT-GTR-325. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 118 p.

Presents a guide to the operation of the TSPAS Default Database Program (TSPAS_DDP), which is one of the two programs in the Timber Sale Planning and Analysis System. The default program develops databases for use in the companion program, which is designed for timber sales. TSPAS_DDP is menu-driven. This guide includes user instructions, glossary, explanation of error messages, and a discussion of the computations used in the companion program.

Keywords: timber management, timber sales, TSPIRS, databases, appraisal, sale planning, economic analysis





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